DEC 14 1960

The Railway and Locomotive Historical Society

BULLETIN No. 103

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THE RAILWAY AND LOCOMOTIVE HISTORICAL SOCIETY

OCTOBER 1960

BULLETIN No. 103

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With the exception of two articles and the comments prepared by two of our members on some of the southern railroads in BULLETIN No. 101, all of the contributors to this publication are making their first contribution to our columns and we welcome them into our midst and congratulate them for their efforts.

Commodore James Plomer, R.C.N. has contributed a moving sketch on the life of Sir Henry Thornton. No one will deny that he had his faults, we all have them and, by the same token, we must all admit that he had his capabilities. In the time that has passed since his death he can be judged more sanely than at the time of the "inquisition" and the author is to be congratulated with his perception and his sketch of this famous railroad man.

How would you like to ride on a two foot gauge railroad free of charge? Well, if you will visit the Fiji Islands, you can do just that once a week when they run the Market Train. For a few years the author was stationed at the Fiji Broadcasting Station at Suva and it was while here that these interesting little lines came under his observation and that he prepared this material for our publication. Granted that there is quite some difference between these lines and the former "two-footers" in our State of Maine but, we must remember that each and every railroad, no matter the location or the gauge has its interesting characteristics and the author has furnished us with a wealth of detail about these little lines on these South Sea islands.

From our Pacific Northwest Captain Benton has prepared an interesting paper on the Seattle Coal & Transportation Co., the first narrow gauge railroad in the territory, operator of the first coal burning locomotive in the territory, it had built for it the first narrow gauge locomotive on the Pacific Coast and it operated the first railroad in the Puget Sound area and, what a sight it must have been to have seen the little locomotive, with possibly a plume of smoke curling from its stack, sailing down the lake with the cars of coal on the deck of a scow! Times have changed! And lastly, Mr. Robert F. Coggeshall has taken an incident, tempered it with the facts, and presented it for its true worth. It would seem that the safest way was to purchase your ticket in the direction you intended to travel—at least at that time as well as now.

Mr. Walter F. Becker has already contributed to the BULLETIN and we are indebted to him for his research through the files of the old "Railroad Gazette" and his furnishing not only a list but quite a bit of interesting railroad data on some of the locomotive builders not included in the article by your Editor in our BULLETIN No. 58. His notes on the engine "Messenger" on the Milwaukee & St. Paul Railway are also of interest.

With the disappearance of the steam locomotive, some of our members are turning their attention either to the locomotives of other countries or to the passenger rolling stock of this country, which is still in use despite the fact that some of our railroads would like to discontinue this service altogether. Your Editor used to observe the passenger equipment of the New Haven as a boy and recently the Society came into possession of some plates showing this equipment. In a series of three articles, he will attempt to describe some of these cars, together with their service and, with the help of the illustrations. Freshly painted and varnished or even scrubbed clean as they were sixty years ago, these wooden coaches with their fancy letterboards and striping were an interesting sight and we hope you will enjoy these articles.

Your Editor realizes that the make-up of this BULLETIN short changes you in the matter of illustrations of locomotives. Well, you've had a lot of them in the first hundred bulletins we have published and, it seemed no more than fair that these four newcomers to our columns should be permitted to present what was of interest to them. Your Editor hopes that you will share this interest also.

"Sir Henry"

SOME NOTES ON THE LIFE OF SIR HENRY THORNTON

By J. Plomer

A great man who died discredited, as has too often happened, must in his after life, find a peace of mind he did not enjoy in death, if he sees the justification of nearly everything he planned come to pass, and what he had already accomplished, more than justified. But that was the last decade of his life when he was President of the Canadian National Railways and his death shortly after he resigned. There was a great deal more to his life than even this, for he was not only a great railroader, but an international figure with a unique and dramatic career, personally venerated and beloved, probably, by more people than any other person in the history of commerce and transportation in the English-speaking world. Certainly he is one of the great men in Canadian history, and not only his work can be seen in the physical plant of one of the world's largest railways, but his influence is still felt in his ideas and beliefs and how he practised them.

To many, however, his name may still be a contentious subject: but time has brought many things into a clearer perspective. Of those who brought about his downfall: many are forgotten names: others fall into place as small men with no achievements other than their shrill voices: others stand out as men forced by the pressure of events and their own loyalties to become involved in an unsavory business for which they had little stomach.

All men have their faults, great men seem to have great faults. Their measure is not in their faults alone, but the weighted balance of their strength over their weaknesses. It would be improper, even impossible, to give this account without showing the man as he was. For he was condemned on his faults alone, and no credit was given for his extraordinary capabilities, and for the gigantic tasks he had already successfully undertaken.

It is, perhaps, more fitting that a Canadian should write of these things, although he was an American, and it is hoped that even within the limits of an article, some measure of better understanding of this man may be given, and more will appreciate what he achieved.

Rather than start off with the routine of birth-date, school, etc., let us flashback to five widely spaced scenes, and connect them to his last eleven years.

The First. A young college graduate (Pennsylvania), obviously by his giant build a pretty capable football player, who has been working only a few years with the Pennsylvania Railroad. He is being interviewed by that famous railroader, the brilliant individualist, L. F. Loree, then General Manager of that Road. Whatever they said we do not know, and it does not matter, but they were both to meet again several times, the last was to be dramatic and tragic. But at this meeting young Thornton had evidently made an impression because by 1901 at the age of 29 he was Superintendent of the Marietta Division.

The Second. We see him in the General Superintendent's office of the Long Island Railroad. It is 1911. For months he has been everywhere on that road talking to employees, planning half the night, and showing a remarkable grasp of statistics, engineering and applying this knowledge with an imagination that was broad and ingenious to the problems before him. Commuter traffic, then profitable, was running into serious difficulties. Partial electrification, increased facilities, ingenious schedules, and a tremendous team-spirit among the employees brought great success. He had now made a name for himself in the contemporary railroad scene.

The Third. A transformation in surroundings far removed from New York City—particularly in that age, and it is July 1914, a month before World War I. In one of the largest and grimiest London terminals he is once again coping with the problems of commuters, but this time there are many more of them, and the plant older and more limited. No electrification, small, antiquated, four and six-wheel passenger cars. Congested track and terminal facilities. And only diminutive tank locomotives for power. But it is the same pattern. As he sits at his desk, subordinates come in and out with confidence. He gets frank answers to his questions. He deals with them all, high and low, with the same relaxed courtesy. There is no familiarity but there is kindliness, good-manners, and good-humour that seem to be a part of his inner-self. He likes and respects all people: all people like and respect him. In the class-conscious England of 1914 this verges on the supernatural. Only a short time before, his appointment as General-Manager had created a storm in the public-press. That an American should be imported for one of the top railway jobs was, it was said freely, an insult to the Nation. There were plenty of Englishmen better qualified etc. etc. The Chairman of the Great Eastern Railway, who had hired him, had stuck by his choice, and in months his decisions had been clearly justified. It was typical of him that among the first things he did was to get an increase of pay for his department heads, they were not well-paid. He was also the first General Manager of a British railway to offer seats to a Union delegation that had come to his office. This is still remembered by old-timers.

A Fourth Scene. It is May 1919, the sadly mismanaged slaughter of millions is over. The place is Buckingham Palace. A tall figure in the khaki uniform of a high-ranking British Army Officer kneels before King George V. When he rises he is Major-General *Sir* Henry Thornton, and after his name are American, Belgian, and French honours. What had happened in these five years? He had, soon after hostilities began, received a commission in the British Army. His rise had been rapid. Throughout it all he had straightened out countless muddles by his energy, personality and judgement. Later by a positive diplomacy all his own he had in Paris brought a degree of harmony between the British and French in transportation that had not existed before, and was of very considerable consequence. It was during this period that he became closely acquainted with many of the famous statesmen, and military personages of that day. He was a good entertainer, and en-

Sir Henry Thornton

joyed being the gracious host: being a well read man he could hold his own in any society. He had travelled a lot further in these last five years. Not many have become the well-trusted friend of the famous, and the idol of the working-man at the same time, let alone in five years, especially a foreigner in that conservative land of England.

The Fifth Scene is imaginary. Its circumstances are real. He is back in his office at Liverpool St. terminus. It is an evening of a spring day in 1922. Nearly all the staff have gone home. The evening is warm and the windows are open. One can hear the frequent starting of steam trains running on a two-minute headway; the evening rush-hour is at its peak. Mingled with the almost continuous sound of the trains is the continuous rumble of solid rubber tires of the trucks and horses of that era, and the large horse-drawn drays. From the drays engines platforms came the high pitched whistles (of the engines). From the streets came the shrill calls of the newsboys. It was hard to catch what they were calling, but it was about the developments of a crisis between Greece and Turkey, and that the hundred odd British railways would now become "The Big Four". Sir Henry looked at the tabloid-sized English evening newspaper on his desk. He had known about this amalgamation for sometime. Indeed his advice had been sought on several occasions. For a time there had been a strong possibility that he would be selected as G. M. of the gigantic new railway of which his Great Eastern was to be a component. He had felt it was to be this or nothing. A lesser position was his for the asking. Apart from a justifiable pride there were other difficulties. His salary £6000 a year ($30,000 then) was good, but it never seemed to be enough. Indeed he had not saved a nickel from it. Money just seemed to become more and more of a problem. The Income Tax was high in England, and this life of knowing a lot of people and entertaining in the proper manner was expensive. There were times when it worried him. The last few years had also seen a matrimonial crisis develop. An uneasy, powerless, feeling came over him. With an effort he drove both subjects from his mind. Recently he had heard they were in need of an expert railroader in Canada. An old friend of his had been sounding the Canadian Government out and suggesting that Sir Henry Thornton was the man they needed. Another gigantic consolidation of railroads was taking place there. He had heard, endlessly, the bitter complaints among the British, who had lost money in the Grand Trunk Railway. He had also heard and read about the fantastic growth and collapse of the Canadian Northern. A Canadian friend of his had said, unkindly, the management had simply run out of shoe-strings. There was also a large government-owned road in the East, well-equipped, but he had heard, the victim of political shenanigans at every turn of its operations. That the Canadian Pacific had survived all this over-building of railways was something more than a masterpiece of good management. He had worked closely with some of the top C. P. R. men during the war. They had been extremely capable, and had a fierce pride in this company which made its success in adversity understandable. But these other three roads, two of them and both by far the biggest were he had been told not only competitive in rates but run-down, badly equipped,

duplicated in hundreds of miles of road, and hopelessly over-capitalized. In fact the Grand Trunk had for years paid its dividends out of fresh bonds, and the maintenance. It would be a mammoth job. It would be no good his taking it on unless the Canadian Government were prepared to spend a lot of money and make it a first class property. It would be a tremendous task to undertake. It could break a man, but he felt confident. There had been many challenges so far. He had not failed one of them, and he never felt readier to undertake another. He hated to leave England and the railways in many ways, but there were many compensations to going back to North America and railroading. Yes, if they wanted him he would take it on. Yet he still felt that uneasy feeling. Again he brushed away his misgivings. Who could do it better? It seemed he had almost been trained specifically by fate for this. An American with a railroad reputation in both continents, he knew statesmen and politicians as well as he knew railroading, its executives and its rank and file. It was not bragging, it was a fact. And he who could only build and organize and abhorred the static, what was Canada but the country with biggest future of any? Didn't they say this was Canada's Century. His usual buoyant optimism began to return now. Here at last were unlimited horizons, a great nation in the making. If the chance came the thing that would build this great nation would be the finest railroad in the world. A locomotive in the station below gave a long shrill whistle. It seemed to answer his thoughts. The answer to a green board, a good omen. Yes, he had a strong hunch he would get that offer. He would give that country all he knew. He did not want a fortune, the job was the satisfaction in itself, and the future would look after itself. As long as he could maintain his proper position for the company, money did not really bother him. When he had enough money he never thought about it. Why waste your time niggling over small sums, when your real responsibilities were millions and millions. He looked at his watch. He had promised to have a drink at his club (the Junior Aethenaeum) . . . with a C. P. R. executive visiting England. He stood up, looked out of the window for a moment, and went out.

* * * * *

This was Sir Henry Thornton's background when he came to Canada. He had been interviewed that year by McKenzie King, the Prime Minister of Canada, that strange, shrewd, secretive man with that intuitive flair for selecting men of ability, in and out of politics. In due course his appointment as President of the Canadian National Railways was announced in Ottawa. It was officially stated that the railway was to be divorced as far as possible from politics, and was to be run as private corporation that happened to be owned by the Government. A Board of Directors were appointed.

The Canadian Pacific Railway now began to feel, quite understandably, considerable misgivings. If successful and the new C. N. R. President's reputation was sufficient for that the C. P. R. was headed towards very difficult times. Statements made by both the Government

and the new President were to them ominous. A rival railroad that entered every city served by the C. P. R. had been no threat in its previous ineffectual state, but one led by this man with unlimited public funds at his disposal and the full support of the government was a grim threat. No corporation owned by stockholders and paying taxes could compete on this basis. For in those days, partly as a political heritage, the Liberal Government in power not only favoured the National Railway, but regarded the C. P. R. askance. The Conservatives, in opposition both from heritage and automatically in opposition, practised completely opposite views.

"Sir Henry," as he was soon to be known right across the Dominion, or as "Hank" among the junior staff in the Montreal headquarters, made news from the day he arrived. The newspapers discussed him endlessly, as did the railroaders. Across the country there was an exhilarating anticipation of undreamt of growth and prosperity: Sir Henry seemed to be the emblem of this future.

On the C. N. R. it was not long before the change was felt. Hundreds of small, worn-out locomotives were pulled out of service, and replaced by more of the larger existing standard types. Hundreds of miles of track were being abandoned, and a start made on consolidating the best grades where parallel road-beds existed. Passenger and freight services were vastly improved. Hotels re-furnished and reorganized. A public-relations department, second to none, was soon started and the words "Courtesy and Service" were seen everywhere, and what was more the Railway was practising it. Such were the first steps.

Morale had been very bad when he took over. Personnel were unsure of the future. There was deep animosity between the groups representing the previous companies. In this respect his old "magic" of prsonality and leadership worked wonders. It is still a tremendous achievement thirty-five years later. No employee was too humble to be greeted with a "Good-Morning!" and with thousands it was by name! Even then he often remembered some personal circumstances. With the executives there was the same warm humanity. In such a consolidation there was bound to be a large number superfluous in the higher brackets. Such was his nature that he insisted that none of them should be released. It was not "good business", because selection and economy would have been achieved, and it caused a dearth of young executives later. But jobs were found for all of them, and when no more could be found, jobs were made. Human nature being what it was, a small minority of these beneficiaries, and usually the least able, were the ones who criticized everything Sir Henry did, and did not seem to care who heard them. It can only be assumed that they considered he had deprived them of the Presidency! However if Sir Henry knew of these gentlemen's freely expressed views, and he probably did, he gave no sign of concern, or even interest.

It was not long before the first products of the planning started when he took over began to appear. Locomotive 6000's picture appeared

prominently in the press in Canada, and abroad in the latter part of 1923. That this locomotive was the biggest locomotive in the Empire was the news, but the significance lay in the fact that this was the beginning of the Big Engine policy for the C. N. R.: heavy steel, strengthened bridges, improved terminal facilities and in return greater tonnage and faster schedules. The 6000 was also an emblem of the new C. N. R. to the employees, and then new pride in the company grew visibly.

In the next few years a lot more was planned and accomplished. New docks, new terminals, new hotels and resorts, new equipment, new branches, new steamers, new repair shops and so on. Every month there seemed to be something new to talk about. There were the numerous and variegated diesel and diesel-electric rail-cars: one crossed the continent in a fanfare of publicity. One of the first road-diesels appeared, a two-unit design, an accurate guess for the future. Radio equipped, solarium-lounge cars appeared on the named trains. At the Baltimore and Ohio Centenary Exhibition in 1927, number 6100 appeared: a 4-8-4 she was close second to the Northern Pacific locomotive of the same type. However, she was referred to as a Confederation type, a mild conceit that lasted several years. Her C. P. R. companion at the Centenary, although a fine engine, was significantly, much smaller. By then the C. N. R. had become a first class railroad whose service provided and employee's spirit was second to none.

The mountain of debt that the company carried was an unrealistic absurdity. It now represented lines that did not exist, bankruptcies that had not been declared, or political patronage of more than half a century, and years and years of dividends paid out of new bond issues and maintenance. But through the mid-twenties the whole of North America was booming as never before. Settlers were pouring into Canada, and money came with them. C. N. R. revenues increased every year. The capital structure was allowed to stand. The government was obviously well pleased, or they would not have continued to make the large sums available for these undoubted improvements. But there were two objections the political Opposition and the Canadian Pacific. The public paid little heed. After all the Opposition were paid to say these things! But the Canadian Pacific management, its worst misgivings fulfilled, found itself involved in a race to maintain its prestige, buying more and more luxury equipment for its trains, more and bigger hotels, and faster and faster trains. (Culminating, to the joy of those interested in Canadian railways, in Canada possessing for awhile the fastest train in the world). While the C. P. R. was in these boom days able to finance this competition and still pay dividends, it was later to seriously affect their financial position. More stock issued and less cash reserves was a worry to that Company's management. They had known hard times before and they liked to be ready for them: some, indeed, felt that there was no need to compete on this basis, but Sir Edward Beatty, a strong upholder of the Company's prestige, was a strong personality too!

The year of 1928 saw the C. N. R. at its peak, and it is a good time to look once again at this giant among railroaders. He entertains even

more than he did before. The parties of his house, presided over by his second wife, set a standard of lavish good-taste that is the talk of the continent. Sometimes, early in the morning, he is to be seen in a sweat-shirt and sneakers having an early morning run on the steep slopes outside his Montreal home to get the fumes of a late night, out of his brain, and to be fresh for the hard day ahead. At fifty-five he is still a vigorous man with an iron constitution.

He is still the same "Sir Henry" to all the men of the C. N. He has not only been a great success, but to each man he is somehow, a mixture of personal friend and half-god. His business-car, perhaps on the Continental Limited, will cross the continent, and he will be out on the platform at nearly every station: a much stouter figure, still well-dressed, usually with the bright coloured vest of a Regency dandy, and a well-cut suit. He has lost none of that personal touch. He can still walk up to a conductor and ask him if his boy graduated from college all right? The pleased and surprised conductor will answer that he did, and Sir Henry will go better and discuss the difficulties of the Medical School. How did he remember? But this was no cheap gimmick. He seldom forgot because he was genuinely interested.

An amusing example of his personality happened at Jasper; a resort that he had personally planned and developed and was the apple of his eye. There a sister of a friend of the writer's used to work in the restaurant on her summer vacations from high-school, as did others from that railroad-town. She was completely overcome with fear one morning when she found a rather gruff-looking Sir Henry waiting for breakfast. Somehow she managed to serve the entire meal without anything going wrong. At the end of it, almost relaxed, she asked,

"Will you have some more Henry, Sir Coffee?" When she realized what she said, her embarrassment can well be imagined. But Sir Henry roared with laughter, and put her completely at ease. In fact he always addressed her as "Sir Coffee" from then on.

We come to 1929, and the disaster and tragedy that followed.

The crash of 1929 while it hit the stock-market over-night, did not hit the C. N. quite so suddenly, but it was quick enough. As the car-loadings dropped so the deficits, on this extraordinary capital structure, went spiralling up. The voices of opposition became louder and people more inclined to listen. Many were laid off from the railway, a lot more could have been from the top down, but the lay-offs were made reluctantly. Traffic declined yet more. It was not unusual to have only three pullman passengers in the off-season on the Continental Limited, Train No. 1, between Winnipeg and the Pacific Coast, with a diner, two sleepers, and an observation car to cater to their needs. Coach traffic was not very much better.

The government as were other governments was now faced with the problem that the more that were laid off the worse the depression became, but there was no money to do otherwise. Also there was an election coming up. To add to Sir Henry's troubles there was an increasing number of rumours about his private life, and his lavish entertaining, that were being twisted and distorted by malignant tongues. A power-

ful section of the press turned against him. The election came nearer. Inexorably and inevitably Sir Henry was identified with the Liberal regime. The political opposition smelled victory. He became the main target, and the amount of mud exceeded the number of decent weapons. It became increasingly difficult for the public to differentiate between what was sincerely meant in the national interest, and what was being said in the interests of political opposition. The election came and the Conservatives came triumphantly into power.

The Railway Committee, a parliamentary group, reformed, and became an Inquisition. Unfortunately Sir Henry was vulnerable on several counts. His new official house in Montreal was a major issue. One of the last acts of the Board of Directors was to approve this mansion, at a staggering $185,000, he honestly felt it was essential to entertain properly and provide the proper prestige to the company. It was financed by equipment trust certificates, an irregularity but not a dishonesty. Indeed each year he had overspent his entertainment allowance to such an extent that the larger part of his salary had been used up for this purpose. As has been shown earlier he had no regard for his own finances. The day of those that hated him was at hand.

He was to appear frequently and for many weeks before this committee. He had none of the defences that would have been the lot of the President of a private corporation under similar circumstances. It was soon evident that he was aging, and this treatment was hard even on his iron constitution. To read the transcript of some of these proceedings is illuminating. The venom and determination to destroy is too evident. So is ignorance shown in either railroading, administrative principles, or even economics. Everything that could be twisted and distorted to make headlines was done. Not all his questioners were of this ilk, but so often it is the worst that makes the news. His worst questioners seemed to be those who personally possessed his fine qualities the least, they seemed to hate him for it. But this idol of many thousands could not be disposed of quietly or even honourably. There had to be a public spectacle and public disgrace to justify their actions. There were persistent attempts to prove political favouritism in the Company's purchasing contracts. It was quite obvious there had been. Neither political party could claim purity in this respect. But Sir Henry never went back on his former backers, where a lesser man with so much at stake would have turned on those previously in power, and hoped to gain the goodwill of his newer employers. There was a lot of justification that the company had been extravagantly managed but it had to wait for a later commission to illustrate this coherently. There was also a lot of truth in over-construction and over-equipment in 1931, but it was not quite so true in 1928. By the end of this he was beginning to look a broken man. Was he to blame if there was any, or were his previous employers? The Liberal Government, but they could not be put in the prisoners box and made a target for this Roman Circus.

Since 1929 there had been a wild spate of ideas in the House and in the Press. Amalgamation. Leasing the C. N. to the C. P. R. Pooling facilities. And any other alternative that sprang into anybody's mind.

Sir Henry's main concern was the future of his company, and one of his primary concerns throughout his ordeal was to preserve the entity of the C. N. R. Whether he was the reason that this was achieved one cannot tell, but while some of these alternatives came closer, they were not to come about except for the pooling of a few passenger trains.

In 1930 and 1931 a Royal Commission sat to inquire into Railways and Transportation in Canada. This committee included some eminent men, among them two railroaders. Lord Ashfield from England who controlled the Underground Group in London, and who in the past had learnt much of his railroadings in the United States: the other, none other than Leonor F. Loree, now President of the Delaware and Hudson. The Chairman was well-known, Canadian judge, Sir Lyman P. Duff. It is an interesting report, concise, and informative, and still available from the Queen's Printer in Ottawa for 75c. There is much that will be referred to in the summary, but at this juncture, Article 33 and part of 35, regarding the C. N. R. should be quoted: Art. 33 reads, in full:— "Running through its administrative practices, however, has been the red thread of extravagance. The disciplinary check upon undue expenditure, inherent in private corporations because of their limited financial resources, has not been in evidence. Requisitions of the management have been endorsed by governments, and successive parliaments have voted money freely, if not lavishly."

ART 35 reads, in part: . . . there is no evidence that the representatives of the people in Parliament exercised any appreciable restraint upon railway estimates placed before them."

On July 19th 1932, Sir Henry's resignation was announced by the Minister of Railways, even before the Duff Commission had furnished its report. Sir Henry stated that his resignation had been asked for by the Minister. The reaction in England was strong, they were shocked and disappointed in the Canadian Government, both the rank and file as well as those in responsible positions. In railroad circles in the United States where his fame was not as great there was generally a similar reaction. The reaction of the CNR employees can well be imagined, but many were bewildered by the mass of words that had appeared in the Press over the past three years.

With his reputation gone, his funds limited, he was now looking for a job. He went back to the United States.

He was disappointed with the findings of the Duff Commission, [but it must be remembered that it was written at the bottom of the depression] and in the selection of the majority of its members. By now there were no neutrals.

An illustration of considerable importance. When he resigned from the C. N. R., he was also a Director of the largest Bank in Canada. In accordance with his principles he suggested he resign from this office too, but was told as long as he felt capable of carrying out these duties there was no need. It must have given him considerable personal satisfaction. In the early part of 1933 the Manager of the New York branch asked him to call in. This he did. Would he resign his Directorship now? Surprised, he had no objection, and he was told that the bank

reluctantly took this step at the direct request of the Government. The bank in those days had no option. His enemies still had not finished. No better illustration can be given of their character.

Where he had looked sick and old, he now began to waste away rapidly. Nobody seemed to need him now, and money must have become an acute anxiety. But on March 14, he was to attend a testimonial dinner to be given in his honour by the general chairman of the unions of the C. N. R. It was to be the most eloquent testimonial dinner ever given by employees of any large organization, a reaffirmation of faith by men who were not afraid to state their loyalty, and the heads of the A. F. of L. were to attend as well. It was not that he was either a Labour man or a Socialist, but his deep, unwavering belief in the respect due to the dignity of the individual man was understood and deeply reciprocated by the majority in three nations, and for outside the boundaries of the transportation industry. In this alone he had bequeathed Canada a priceless legacy, for a legacy it became. On March 14th he was dead in a New York hospital.

In eleven of the largest depots of the Canadian National Railways are fine bronze plaques, erected by the employees with a full-face likeness, and the inscription:

"In Loving Memory of Sir Henry Thornton K.B.E., Chairman (&) President, Canadian National Railway Lines, 1922-1932. Died March 14th, 1933. This Tablet is Erected by the Employees, Canadian National Railways."

The tablets are still there.

A year later the government was overwhelmingly defeated.

SOME CONCLUSIONS

Looking back, with all the advantages of hindsight of a quarter of a century, we can speak with more certainty. While admitting a degree of partiality, one can try and assess some of the debits and credits, and those matters that fall in between. They are:

On the Debit Side

(I) As he was hopelessly extravagant in his own finances: he was equally so in the administration of the Company. To what extent the Government was responsible through the Board of Directors is hard to assess. The reader must use his own judgment, but in the Pennsylvania and the Great Eastern the problem was never serious—their purse strings had to be well controlled!

(II) His personnel policies on the executive field were kindly, sentimental, and unrealistic. The Company suffered for this in many ways.

(III) He was by nature overly-optimistic. This had been said of him long before he came to the C. N. R. One of several examples was the over-building of branch lines in the West. While Canada has developed a lot since those days and the population has more than doubled, there is still no justification for many of these lines.

(IV) For setting the pace of what was almost unlimited competition with the C. P. R. When Sir Henry took over the Presidency of the C. N. R., Canada had by far the largest per capita mileage of railways in the world. They were adequate for a population many times the size provided, of course, they were settled where the railways were already built. To add to this situation expansion and competition could only end in disaster or to the shareholders and taxpayers alike. As such it was pretty nearly the case. If there is no doubt about the ultimate responsibility, Sir Henry must take his share of that blame. One point of interest does arise from this, and that is the remarkable durability of the C. P. R. to have survived as a private corporation.

(V) Sir Henry was primarily a passenger expert. It was a pity that this relatively small proportion of Canadian railway business, even then, should have taken the greater part of his attention, for it put the greatest improvements in the least profitable area

(VI) His expensive house and lavish entertaining were not necessary. His entertaining cost him more than it did the company, and he cannot therefore be criticized on that account. But the house while legally approved by the Board of Directors, was bought at considerable expense through equipment trust certificates, also legal. His friends flinched when they heard of this. Much was wrongly implied by the hostile section of the press that was both malicious and false. Nevertheless he was wrong to undertake this extravagance on behalf of a publicly owned corporation that could not meet its debts.

Middle-Ground

(I) He was accused of giving his entire loyalty to the Liberal Government rather than to the Canadian people. This is erroneous. The Liberal Government were the elected representatives of the Canadian people, and by a good majority. However this point was made much of by his enemies at the time, naturally they were not members of the Liberal Government. He may not have played his cards wisely at times, but it is obvious by the very nature of the man he would have been equally loyal to the Conservative Government, had he not already been condemned by them before they even took office. Indeed, at times, he seemed to be the principal target during the months preceding the election.

(II) Like some of the branch lines, there were other costly projects that would have failed even had the 1927 level of prosperity continued. An example were the three fast luxurious coastal steamships, liners would be a better term. They were built for $5,235,000 in England, and were to run in direct competition with the C. P. R. in the Vancouver-Victoria-Seattle run. This service was already a superior one in the hands of the C. P. R., and there was room for only one company. Larger, faster, and more luxurious than the C. P. R., they would, theoretically, have left the C. P. R. ships empty in a matter of weeks, and even if run at a loss would have left the C. P. R. only with their lesser routes on the Pacific Coast. The public objected strongly and refused to patronise the newcomers. Delivered in 1930 they ran for a few mournful months

and were laid up. Beyond a few charter periods they remained in that condition until the war. But for the war they would have rotted away or been sold for a fraction of their cost, instead they became valuable assets. For nearly six years they served as Auxiliary Cruisers and Landing Craft Carriers and were sold at a good price at the conclusion of hostilities. Admittedly this probably was not part of Sir Henry's foresight, but he did provide these invaluable ships! This was also one of the most critical items in the Duff Report.

On the Credit Side

(I) All that was involved in leadership and management in consolidating three railroads, largely run-down, involving many miles of duplication, and a particularly low morale, into a railway, 23,880 miles long into a first-class property, efficiently operated, and with a morale second to none. It inevitably cost a lot of money and, apart from what has already been mentioned, the country got good value. What had been a muddle became a national asset. But it took more than money, it took genius, and this he had. Time has certainly justified all that was spent in this direction. The war and post-war years are proof of this. In fact there were also items had he been allowed to finish them would have been invaluable only a few years later. (An example is given below.) It is the opinion of many that after he left the C. N. R., the initial impetus that he had established, carried the C. N. R. on its way for many years. Certainly his spirit carried on with the employees long after he had gone. To keep the balances of debits and credits clear, this was, undoubtedly one of the greatest transportation accomplishments of the century.

(II) Coupled in with the preceding paragraph was the Halifax Ocean Terminal. This is not only a national asset, but an example of one of the items criticized as a costly extravagance at the time of its construction. This is a complex of deep-water harbour facilities, freight and passenger, grain-elevator and hotel, and a railway relocation that involved some miles of rock-cut. It has justified itself many times over since that if one were to ask any of the present users or the city authorities the consequences had it not been built, the alternatives to them would have been unthinkable. Further to this it was built at a figure that could never have been repeated since.

(III) "Thornton's Folly". To anyone who has visited the C. N. R.'s Central Station in Montreal and who is of an observant nature, they may wonder why so much heavy timber was used in its construction particularly in the platform areas. The use of this material points to the moral—Whose Folly?

Originally the Canadian Northern Terminal at the mouth of an expensive tunnel through Montreal's famous mountain, it was obvious that if the two other C. N. R. terminals were to be centralized this was the site for it. Not only were economies to be achieved but much better facilities would be available not only to the travelling public, but in the matter of handling mails and express. The scheme he envisaged was a

Central Station, centralized offices (until recently the C. N. R. offices have been scattered around Montreal), and a big hotel. The work was approved and had got off to a good start when the depression came, and the war, was summarily stopped. This big 'hole in the ground' and the partially completed work remained there until the war years.

Work had to be re-commenced during the war. It had to be. The confusion of three unconnected stations was serious. In 1958 the then largest Hotel in the British Commonwealth was completed on the same site. At the moment, under construction, are the centralized offices for the C. N. R. and a shopping-centre, all in the areas as a modernized version of the original scheme. They should prove to be a profitable investment in the centre of this great city.

But, and a big but, had they been built in the depression. Certainly the Station would have been built, not only for much less than it cost during the war, but of better and more durable materials, and it would have meant all this man-power that could be ill-spared during the war would have been available for other high-priority wartime commitments. Just as important is the fact the work would have been given to many in the Depression who needed it desperately. Folly! The "Folly" certainly was not Sir Henry's.

* * * * *

In closing, and as a frank personal opinion, his epitaph should read.

"A Lion-Hearted Man, of Outstanding Accomplishments, Destroyed by Lesser Men, the Depression, and His Own Optimism."

BIOGRAPHY

It is one of the writer's ultimate ambitions to expand these notes, some day, into a book. There is a lot of source material in books and magazines, but the best naturally, is in those who knew him personally.

In books much of interest has been found, i.e.—

The Tragedy of Sir Henry Thornton by D'Arcy Marsh. Published by Macmillan Co., Toronto—1935

War at the War Office by Sir Sam Fay. Published by Hutchinson & Co., London, Eng.—1937

The Great Eastern Railway by Cecil J. Allen. Published by Ian Allan, London, Eng.—1955

Report of The Royal Commission to Enquire Into Railways and Transportation in Canada. King's Printer, Ottawa—1932.

In Periodicals:

The Railway Magazine (British) 1913-1923.
Canadian Railway and Marine World—Nov. 1922.

Of General Background Value:

The Canadian Railway Problem by Thomson. Published by Macmillan—TORONTO 1938.

The Grand Trunk Railway of Canada by Currie. Published by University of Toronto, 1957.

Trains of Recollection by Hanna. Published by: Macmillan—TORONTO 1924.

A FEW SIMPLE INSTRUCTIONS FOR THOSE WHO WOULD WRITE ARTICLES

1. Use a typewriter with a good ribbon.
2. Use a good grade of paper, one that will withstand erasures.
3. Leave ample space at both top and bottom of each page.
4. Double-space all writing, and leave at least a one-inch margin at each edge of the sheet.
5. If you make a mistake in typing, erase it and correct it. *DO NOT TYPE OVER IT.*
6. DO NOT make corrections with ink or a ball-point pen.
7. Number each page.
8. Avoid footnotes. If footnotes are absolutely necessary, read rules in any good dictionary for use of them. Incidentally, most good dictionaries contain rules for preparation of a manuscript.
9. Make as many carbon copies as you wish, using good carbon paper, BUT SUBMIT THE ORIGINAL WHEN OFFERING YOUR ARTICLE FOR PUBLICATION.
10. Never fold or roll your manuscript. Mail it flat.
11. Finally. Read your article ALOUD several times. You will almost surely find that you've written some things that don't make sense, or that are so repetitious as to be tiresome and difficult to read.

Narrow Gauge In Fiji

By Peter Hodge

Nandi International Airport in Fiji is a stopping place on all airline routes connecting North America with Australia and New Zealand. The average traveller passing a few hours there between flights does not realize that less than a mile away runs the main line of one of the few remaining railways in the South Seas. As his aeroplane resumes its journey it may pass over a little locomotive painted red, green and yellow, with a voluminous balloon stack and a shiny brass dome. This locomotive will be dawdling along at about ten miles per hour with a long jolting train of small rack wagons strung out behind it. If he is an average traveller he may laugh a little at the quaint locomotive and its odd train, but if he has a weakness for steam engines, he may wonder idly just where that train is going and what it carries.

The railways of Fiji are very unobtrusive. For nearly six months of the year you may travel by car or bus alongside their meandering metals and never see a sign of life. But for the rest of the year you may lie awake at night cursing the frequency with which they pass and the shrilling of whistles and clanging of trucks which marks their progress.

These Fijian lines are most appropriate to their environment. Their trains are small, old-fashioned, and very leisurely. But this quaintness is deceptive. For all their diminutive equipment and old-world appearance the railways of Fiji do a man-size job. Every year they haul more than one and a half million tons of sugar cane, raw sugar, molasses, coal and other necessities over their 440 miles of two foot gauge tracks.

The British Crown Colony of Fiji contains more than three hundred islands within its boundaries. One hundred are inhabited, and, of these, only two are of any size. They are Viti Levu—with an area slightly less than that of the Island of Hawaii—and Vanua Levu, covering about 2,100 square miles. The Colony lies well within the tropics. Its population of more than 350,000 is composed of approximately 48 percent East Indians, 42 percent native Fijians, and 10 percent Europeans, Chinese, Polynesians, Melanesians, and Micronesians. Sugar crushing is the biggest industry. It is the monopoly of the Colonial Sugar Refining Company of New South Wales, Limited. To carry the raw materials, products and requirements of this industry the Company operates five self-contained two foot gauge light railway or tramway systems. Two of these systems combine to form the Rarawai-Kavanangasau Light Railway, which traverses the entire west coast of Viti Levu. In the north-east corner of the same island the sugar mill at Penang is connected with a wharf at Ellington and the areas which supply it with cane by another system of tramways. Nausori Mill, twelve miles from Suva—the capital of the Colony and its largest town—is served by two short tramway networks. A fifth sugar mill at Lambasa, on Vanua Levu, is served by a moderately extensive system of light railways.

The Rarawai-Kavanangasau Light Railway developed from two local systems connecting Lautoka and Rarawai sugar mills with their cane supply areas. Rarawai is situated one mile from the township of Ba in the Ba River Valley near the North East Coast. Lautoka is a port thirty miles away on the West Coast. In the early 1900s Rarawai and Lautoka were linked by rail and the entire raw sugar and molasses from Rarawai Mill has since been sent to Lautoka for export. Lautoka Mill was the last to be established in Fiji. It began crushing in 1903 and is believed to be one of the largest sugar mills in the Southern Hemisphere. At first Lautoka drew its cane supplies from the Nandi district, some twenty miles to the south, and a narrow coastal plain immediately to the north. By 1915 the main line of the light railway had extended south from Nandi along the west coast, through the Nandronga region in the south west of the island and up the Singatoka River Valley to Kavanangasau. This increased the maximum possible length of haul for trains working to and from Lautoka to more than eighty miles. The Colonial Sugar Refining Company's legal obligations in respect of the main line from Rarawai to Lautoka and Kavanangasau were consolidated under the Rarawai-Kavangangasau Light Railway Ordinance of 1914. Two of the requirements laid down in the Ordinance were that public passenger and goods services were to be run over the entire length of the railway at regular intervals. One of the results was the famous Free Train—a twice-weekly passenger service. This working makes a return trip from Lautoka to Rarawai on Mondays and Thursdays, travels south to Kavanangasau on Tuesdays and Fridays, and returns to Lautoka on Wednesdays and Saturdays. The service is provided free of charge to absolve the Company of any legal responsibility for personal injury or damage to property suffered by passengers on the train. The Free Train is worked by a rather prim and proper English built 4-4-0; the railway's only passenger locomotive. It is made up of one closed and three open bogie carriages, a luggage van, and one or more diminutive insulated wagons. The Free Train is a well-established Fiji institution and residents of the Colony often make the proud but quite erroneous claim that it is the only free passenger train in the world.

In the 1920s the main line was extended eastwards from Rarawai for a further seventeen miles to Tavua. For a time the Free Train's services to Rarawai were extended to terminate at Tavua but, within the last few years this practice has been abandoned.

In its present form the Rarawai-Kavanangasau Light Railway comprises a main line from Kavanangasau to Tavua, rather more than 120 miles, and numerous tributary branches serving outlying cane-growing areas. It is worked in two self-contained divisions based on the sugar mills at Lautoka and Rarawai. Both divisions maintain their own motive power rosters. Locomotives from Lautoka haul cane trains over all lines between Varoko near Rarawai and Na Savu Savu, a little more than forty miles south on the line to Kavanangasau. The remaining forty miles from Na Savu Savu to Kavanangasau are worked by a team of four or five locomotives based at Thuvu. There are locomotive depots at Lautoka Mill and Thuvu, which is about twenty miles from Na Savu Savu. All locomotives from these two sheds are included in the Lautoka

roster. Main line haulage between Lautoka and Na Savu Savu is handled by 0-6-0 tender locomotives. A considerable amount of local traffic originating in the vicinity of Lautoka and Nandi is worked by 0-6-0 and 0-6-2 locomotives which are fitted with both side tanks and bogie tenders. But, even in the South Seas, the voice of the Diesel is becoming frequently heard in the land. During the past three or four years 0-6-0 Diesel mechanical locomotives built by Clyde Engineering Limited, an Australian subsidiary of General Motors, have been increasing in number.

Trains carrying raw sugar and molasses from Rarawi to Lautoka have been entirely worked by Clyde Diesels for the last three years. In ordinary cane haulage Diesel power has made proportionately greater inroads at Rarawai than at Lautoka. Rarawai Mill draws most of its cane from the Ba River Valley and the Tavua district. Branches serving the Ba Valley are mostly worked by Diesel locomotives. Trains to and from Tavua are worked for the first ten or twelve miles, as far as Tangi Tangi Tanks, by a team of three steam locomotives. The next few miles are worked by a Clyde Diesel which, in turn, exchanges loads at Tavua with the locomotive working the local branches; an 0-6-0 Diesel built by the English firm of Hudswell Clarke.

Compared with most narrow gauge railways the Rarawai-Kavanangasau Light Railway carries very heavy traffic. Most of this tonnage is hauled during the cane crushing season, which lasts from June to January. Lautoka Mill receives more than 600,000 tons of cane in a season. Most of it is carried by rail, although motor lorries are used to a small extent to connect outlying areas with the mill, or nearest railway siding. 600,000 tons, (the unit employed in these statistics is the British ton of 2,240 lbs.), per season means that about 18,000 tons are received during a six-day working week, or 3,000 a day. Taking the average cane truck capacity as slightly more than two tons, this means that almost 1,500 wagons are received, unloaded and despatched again each day. The rolling stock used to carry cane are four wheel rack wagons built from steel, or steel and wood. They are designed to be hauled over portable tracks by animal power or tractors. This operation is nearly always necessary and it is one aspect in which sugar cane tramways differ from most other railways. The truck is nearly always brought to the load, even when it involves repeatedly laying, taking up and relaying portable tracks. While this process may seem rather difficult and wasteful it is not really so. The smallness and lightness of cane trucks makes them easy to work in the fields and they are less liable to bog down during rainy weather than motor transport. After the loaded trucks have been worked by animal power or tractor to the nearest railway line they are collected by a locomotive and hauled to the mill. Cane trains usually total from 60 to 100 trucks with a total weight of from 200 to 300 tons. This is a fair load for the small locomotives used on the Colonial Sugar Refining Company's railways but it is made possible by a long-established policy of avoiding steep gradients whenever possible. 300 tons is almost the maximum train loading on the Fiji railways although rather higher tonnages are usually worked on the raw sugar and molasses trains running between Rarawai and Lautoka, which

are made up to about 30 loaded bogie flatcars and as many as 20 four wheeled tank wagons.

Because of the continual progress of conversion to Diesel power it is almost impossible to give an accurate account of current locomotive stocks. The summary of locomotives given below represents motive power employed by Lautoka Mill in July 1957.

Road Number	Wheel Arrangement	Builder	Building Date
1-7	0-6-0TT	John Fowler & Co., Leeds, England	1903-1906
8 & 9	0-6-2TT	John Fowler & Co.	1907 & 1910
10-17	0-6-0	Hudswell Clarke & Co., Ltd., Leeds, England	1912-1914
18	4-4-0	Hudswell Clarke	1915
19	0-4-0ST	Hudswell Clarke	1914
20 & 21	0-6-0	Hudswell Clarke	1936
22	0-6-0	Hudswell Clarke	1938
23 & 24	0-6-0	Hudswell Clarke	1950
25	0-6-0	Hudswell Clarke	1914
1 & 2	0-6-0 Diesel	Clyde Engineering Ltd. (Australia)	1957

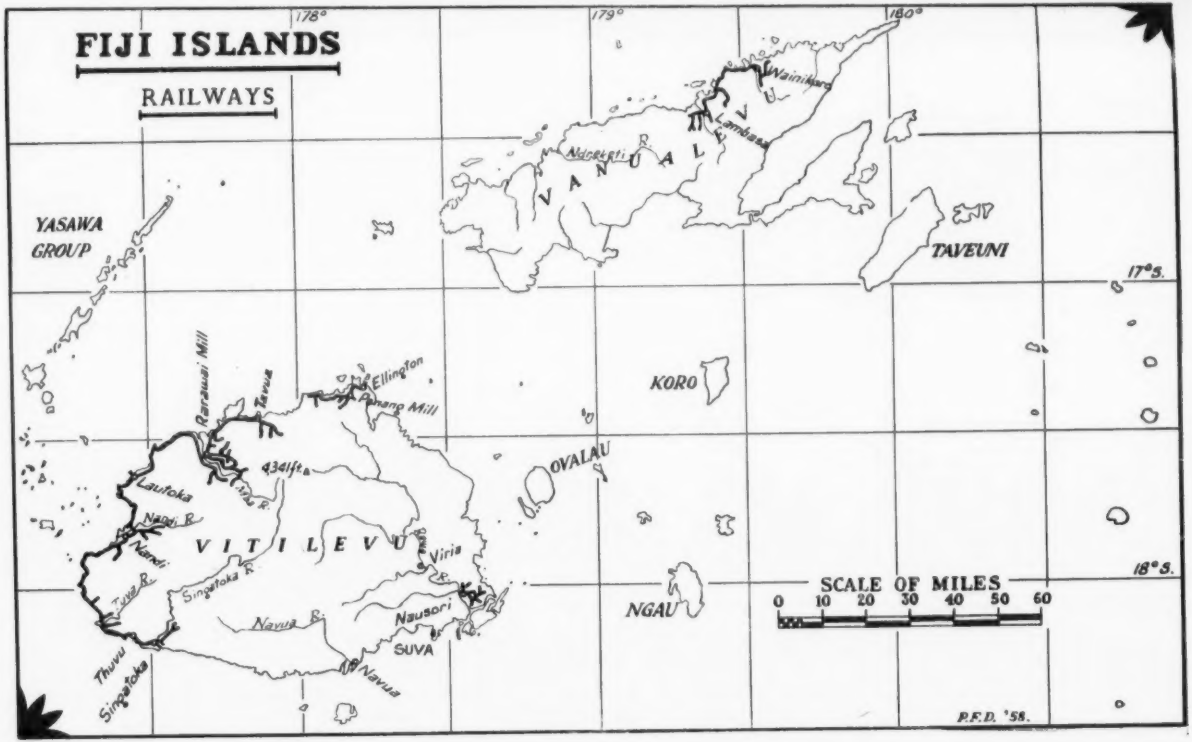
Five chain-drive petrol and Diesel shunting tractors built by Simplex of Great Britain.

All locomotives in Fiji have outside frames.

The nine Fowler locomotives were built as side tankers with coal bunkers inside the cab. Later they were modified by being first fitted with four-wheel water tanks and later with bogie tenders built by Clyde Engineering. They have 8 or 9 x 12 cylinders, and two foot diameter coupled wheels spaced at 2′ 9″ intervals. The cabs are very rudimentary: comprising a steel roof supported by four corner stanchions.

The Hudswell Clarke 0-6-0s are conventional tender locomotive with 9 x 12 cylinders, 2′ 2″ diameter coupled wheels spaced 2′ 9″ apart. Their working pressure is 160 lbs. per square inch. No. 11, the first to be built, was the founder of a class of light railway locomotives which appeared in Hudswell Clarke's catalogue under the code name of Singatoka, presumably in honour of the extension of the Rarawai-Kavanangasau Light Railway to the Singatoka district for which Nos. 10-17 were imported.

No. 18, the passenger locomotive, has 2′ 6″ diameter coupled wheels and a six foot coupled wheelbase. No. 19, a typically English saddle tanker, is often nicknamed Kanaka. It has 8 x 12 cylinders, 2′ 00″ diameter coupled wheels, and a 3′ 7″ wheelbase. 19 spends its days shunting four wheeled flatcars of bagged raw sugar between the mill stores and the wharf at Lautoka. Nos. 20, 21, 22, 23 and 24 are almost identical with the earlier Hudswell Clarke 0-6-0s. 25 was resurrected from the scrap heap at Lambasa Mill on Vanua Levu, where it had lain for two years, and reassembled, reboilered and fitted out with a new tender before being given a new lease of life in 1957. Nos. 11 and 15 were in very bad condition in 1957 and may have been scrapped by now. Clyde Diesels are being imported to replace steam locomotives with worn out boilers. Second Nos. 1 and 2, like all recent Diesel importations, are Clyde Engineering's DH71 model locomotives with General Motors six


FIJI ISLANDS
RAILWAYS
178°
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YASAWA GROUP
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Wainikoro
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Nagigiri R.
TAVEUNI
17°S.
KORO
OVALAU
Rarawasi Mill
Tavua
Ellington
Penang Mill
4341ft.
Lautoka
Nadi R.
Nandi
VITI LEVU
Sigatoka R.
Singatoka
Navua R.
Viria R.
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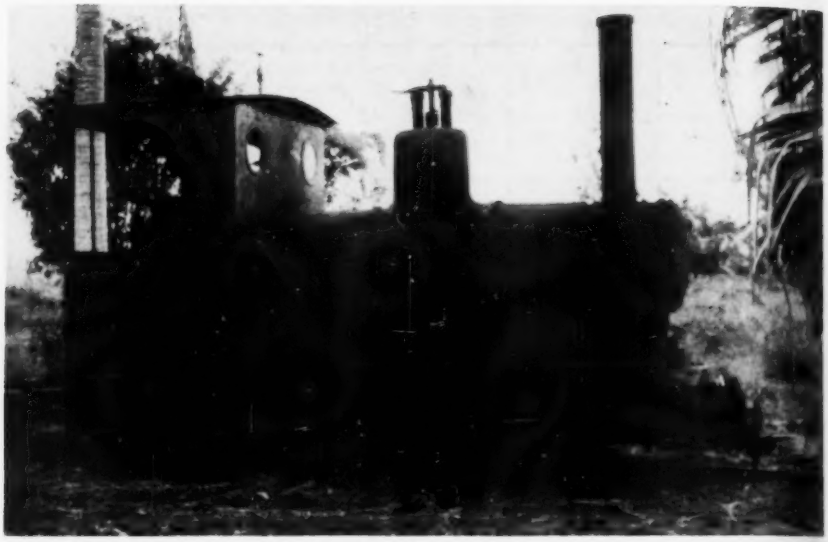
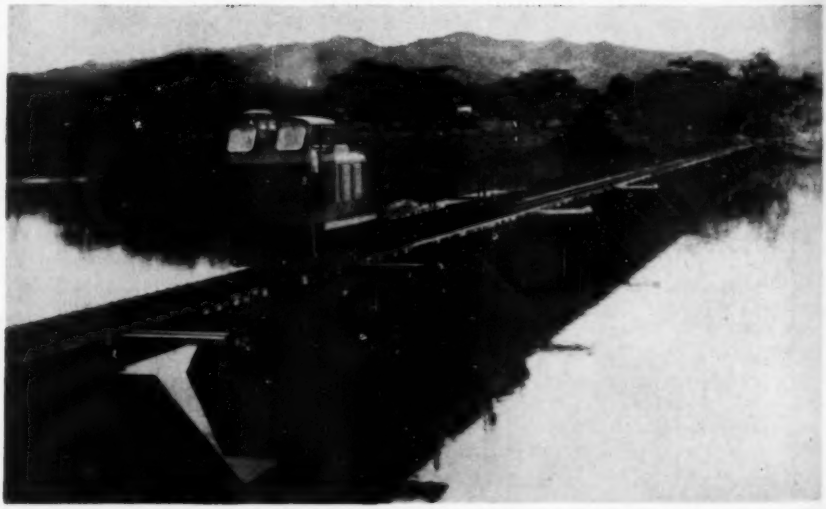
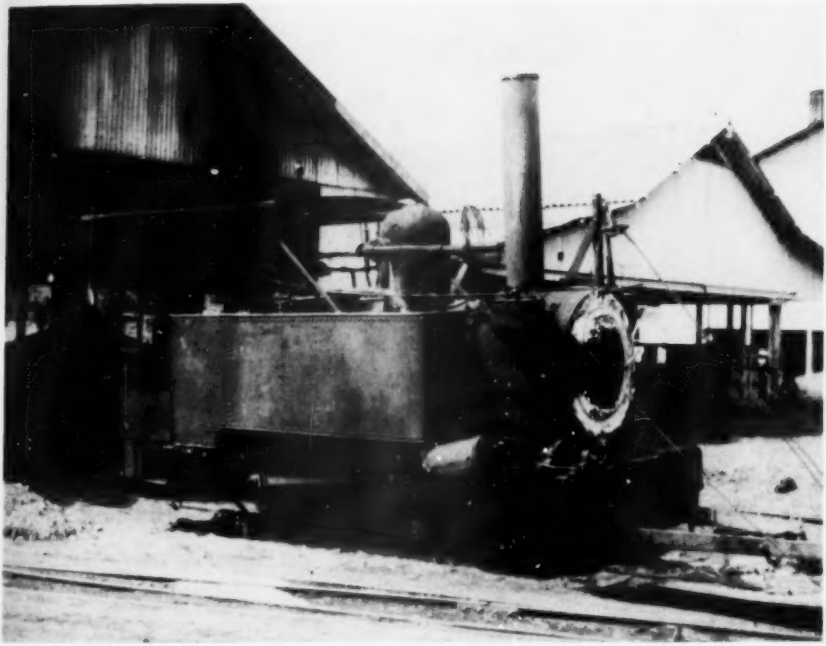


An 0-4-0TT, built by Scottish firm of Andrew Barclay & Sons, works an isolated tramway at Baulevu, ten miles up the Rewa River from the sugar mill at Nausori.



Rarawai #34, an 0-6-0 Diesel by Clyde Engineering of Australia, crosses the Ba River Bridge in the noon day heat of a November day in 1956.

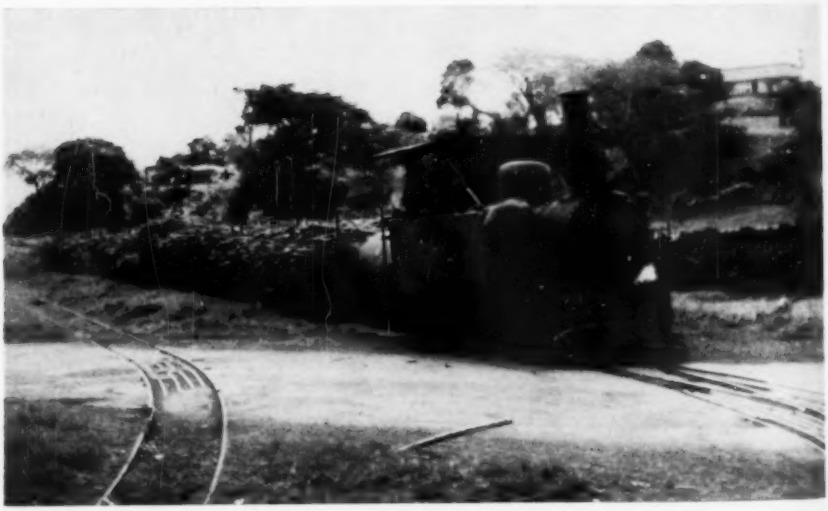


An 1886 vintage 0-4-0T, one of the survivors of the time when all the Fijian Railways were all short plantation tramways, stands outside the locomotive shed at Nausori Mill, near Suva. The gadget attached to the front locomotive beam is a home made grass scorcher, for controlling weeds by spraying them with steam.

Mangaru, driver of the Free Train, stands beside the #18 as the Free Train crosses a Diesel hauled sugar train enroute from Rarawai to Lautoka.

This is how the fireman of the #18 sees it as the Free Train fusses along behind an empty sugar train near Nandi.

An 0-4-0T and an 0-6-0T, both Fowler-built, are the entire roster of the tramway connecting Nausori Mill with the cane lands of the Rewa Delta.



An 1893 model Fowler 0-6-0T crosses the King's Road—the main road from Suva to Lautoka via North and East coasts—as it enter Nausori Mill Yard with a load of cane.

cylinder, 7½ type, engines developing 170 horsepower. They have 2′ 4″ wheels and a wheelbase of six feet.

There is a certain amount of license in locomotive liveries. The basic colour is mid green. It is applied to cabs, tenders and tanks on most steam locomotives in the Colony. Boilers are painted black with smokeboxes and funnels sometimes finished in silvery gray. Some of the more recent Hudswell Clarke 0-6-0s have maroon boiler barrels. Headstocks are painted red with a border of yellow and a certain amount of red and yellow paint is used to pick out engine and tender frame edgings and coal rails. A common feature of all tender and side tank locomotives is their large and usually well polished brass domes. Until recently locomotives derived lighting current from twelve volt batteries carried in the cab. But recently proper electric headlights have replaced the car headlamps which formerly provided illumination and the batteries have given way to steam generators.

Rolling stock is notable for its simplicity. All four wheeled stock is small: even by two foot gauge standards. Length over buffers is never more than 8′ 6″ and the wheelbase is usually about 2′ 9″. Wagons are fitted with 15″ diameter spoked wheels. No rolling stock is fitted with brakes. Couplings comprise square-faced centre buffers, hooks and rings. Four wheeled rolling stock includes cane trucks, side-door hopper wagons, highside wagons, molasses tank wagons, and portable line bogies. The last are small low flatcars and are used, coupled in pairs like logging trucks, to carry lengths of portable track. Bogie rolling stock in use on the Lautoka division includes flatcars and storage vans. The latter are used by maintenance crews to store their tools and belongings under lock and key. The length of all freight bogie rolling stock is about 17 feet. Passenger rolling stock includes three open-sided carriages, with slatted wooden transverse seats, and a closed carriage. The enclosed car is reserved for use by company officers and guests. It has steel sides topped by roller blinds, which can be raised to improve ventilation, and a steel roof. Its furnishings include two long wooden seats extending across the full width of the car, a safe and a letter sorting rack. The last two items are relics of the time when the Free Train was the only means of land transport for much of Western Viti Levu and was used frequently for the carriage of payrolls and mail. The four passenger carriages are long by Fiji standards—being at least thirty feet from buffer to buffer. The luggage van which completes the regular Free Train formation is rather shorter. It has two sliding doors on each side, and an end platform. One or more tiny four-wheeled insulated vans are usually attached to the rear of the Free Train. They carry meat and other perishable foodstuffs for employees in outlying areas. Some of the Free Train vehicles have barbed wire nailed on their roofs to discourage acrobatics by the sometimes rather ebullient Fijians riding the train.

Rolling stock colour schemes vary from unadorned steel for cane trucks, red for hopper wagons and flatcars, black for highside wagons, and white and grey for passenger train stock.

Lautoka Mill employs about 2,780 cane trucks, 147 hopper wagons, 24 bogie flatcars, 41 highside wagons, 40 wharf trucks, 150 portable line

trucks, three storage vans, three open or palace cars, one enclosed passenger car, one luggage van and two insulated vans.

Although trackwork on the Rarawai-Kavanangasau Light Railway may seem fairly light by normal standards it is definitely the most substantial in the Colony. Flat bottomed rail, weighing 35 lbs. per yard, is standard for main line use. Heavy duty lines in the vicinity of Lautoka, are however, being relaid with 45 lb. rail, and main line points or turnouts due for renewal are being replaced with new structures built up from the heavier section rail. Wooden sleepers are used in pointwork, on bridges, and on a few sections of normal track but, apart from these special instances, steel sleepers are the rule. Until a few years ago coral sand was used as ballast but it is gradually giving way to crushed stone. The normal main line minimum curve radius is five chains, but there are examples of curves as sharp as two chains' radius. Points or turnouts are constructed with a spread of one in five through the frog, or a radius of 1½ chains. All turnouts are prefabricated at the Company's engineering works at Pyrmont Refinery, Sydney, and are assembled on the spot. The policy of avoiding steep gradients whenever possible means that the Rarawai-Kavnangasau Light Railway, and indeed most lines in Fiji, usually keep to the coastline, often running through mangrove swamps for many miles. As a result of this policy very few main line gradients are steeper than 1 to 40, or 2½%, and the average is well over 1 in 100, or 1%. The ruling grade against the load on the line from Kavanangasau, for instance, is 1 in 120, approximately .83%. It occurs near Thuvu, sixty miles from Lautoka, and reduces train loadings in that area to 65 loaded trucks.

There are few engineering works of any magnitude on the Lautoka Division. The most common earthworks are embankments, of which there are many miles traversing mangrove swamps. Cuttings and fills occur along the coastline near Lautoka and Thuvu. There are some impressive stretches between Singatoka and Kavnangasau, where the line edges its way around steep cliffs which drop steeply into the river. The scenery is frequently monotonous, especially in mangrove country, where the prospect is usually only muddy water and intricate masses of vegetation. There are, however, some pleasant stretches of country along the coast near Lautoka, in the Nandi Plains, along the coast near Thuvu, and in the Singatoka Valley. Only occasionally is there anything resembling the conventional idea of a South Sea island scene. Bridges are frequent, and they are often shared with the road. Many are very small—little more than twenty or thirty feet long—but there are a number of medium sized structures, and one most impressive affair which spans the Singatoka River, and is at least 600 feet long. Most bridges are of the steel girder type, but there are a few steel and wooden through-truss road-rail bridges on the older part of the line, near Nandi. There are no passenger stations or storage and loading facilities for public freight. Lineside buildings and structures are mostly water tanks, which are usually made from steel, store buildings, and locomotive sheds. Corrugated iron is the most popular building material.

Train working is conducted to what might appear to be Rafferty's Rules. There is no signalling. Communication was formerly maintained by trackside telephones. Traffic was controlled from Lautoka and Thuvu and drivers were instructed, when and where necessary, by telephone. In 1957 a number of locomotives working in the Lautoka area were fitted with radio telephones. This provides better communication than the old method of ordering engine drivers to proceed to a certain siding, or telephone location, where they would either cross another train, or be given further instructions. Train working is governed by the sugar mill's working day, and the extent of its need for cane. Empty cane trains leave Lautoka for the exchange yard at Na Savu Savu and other points en route, as well as points along the Rarawai line as far as Varoko, in the morning. The return trip to Na Savu Savu takes at least twelve hours, and the locomotives allocated to this turn are usually back at Lautoka with their trains of full cane trucks by late evening. They are then serviced in readiness for another day's work. Four or five locomotives are usually employed on this run. They leave the mill from about 6 a. m. to midday and, as they are followed fairly closely by at least six or seven trains bound for points along the main line as far as Nandi, a regular stream of traffic often develops. This is accentuated by the fact that there are no rules about keeping the line clear before or after trains proceeding in the same direction. A convoy of two or three trains running almost head to tail is a fairly common sight. During the day there is a considerable amount of traffic caused by trains shuttling to and fro between Lautoka and Nandi. Finally, in the evening, a second rush hour develops as the main line locomotives return from Na Savu Savu, again followed by locomotives from the Nandi area. The more recent Hudswell Clarke 0-6-0s are allocated to the Na Savu Savu run. Their older brethren work between Lautoka and Nandi and Na Savu Savu and Kavanangasau. The Fowler engines are confined to the Lautoka and Nandi Areas, and the north line as far as Varoko near Rarawai. But it seems that methods are changing. In recent months a Clyde Diesel has been working right through from Lautoka to Kavanangasau, and it is possible that, as more steam locomotives are retired, this practice may become the rule. If this happens the locomotive depot at Thuvu may lose some of the locomotives—four Hudswell Clarke 0-6-0s and one Fowler 0-6-0TT—which formerly worked all cane traffic between Na Savu Savu and Kavanangasau.

The showpiece of the Lautoka Section is undoubtedly the mill yard at Lautoka. It is a very impressive layout with separate reception and despatch yards, sidings serving bagged sugar stores, cane unloading sheds, and other parts of the mill, a short double tracked branch to the wharf, and the locomotive sheds and workshop. The wharf line possesses one of the few American features to be found on the Fiji railways—a level crossing barrier which can be raised or lowered by rotating a windlass in a lineside shanty. The locomotive shed contains four tracks and has a capacity of twenty locomotives. There is a workshop at the rear with facilities for wheel turning, welding and the hundred

and one other maintenance tasks peculiar to locomotive depots. The locomotive serving facilities include a large water tank, sandbins, and an engine coaling stage supplied by hopper wagons on an inclined track. The reception yards contain about eighteen tracks. Cane trucks are hauled from there by a Simplex tractor to a weighbridge. The tractor is then diverted to an adjacent siding and re-coupled to the trucks by a tail rope. The trucks are hauled through the carrier shed where they are unloaded either by being tilted on a wagon tipper, or by a series of steel claws on an overhead. Finally the empty trucks are hauled to the despatch sidings where they are marshalled into trains.

The Rarawai section of the Rarawai-Kavanangasau Light Railway is also remarkable for the density of the traffic it carries. The main line from Rarawai to Lautoka is used by trains conveying raw sugar and molasses as well as cane trains. It begins at the north end of Lautoka Mill yard and runs alongside the main street of Lautoka township for at least a mile before striking out across the plains. Gradually the railway draws nearer the coast—running on a roadside location—about seven miles out it completely forsakes the road and heads straight for the sea to avoid a range of hills. For several miles the line follows the coastline of a fairly rugged peninsula before coming to a small and narrow plain. It rejoins the road here and, for the rest of the distance to Rarawai the two routes play hide and seek with each other—sometimes running side by side and sometimes going their respective ways. The railway nears the coast again as it rounds the end of the low ranges bounding the Ba River Valley. Then it heads inland up the valley. The road is crossed near Varoko, where there are two sidings and an engine turning triangle. The railway is passing through very rich cane land. Houses become more and more frequent as it approaches the outskirts of Ba Township. A branch line, leading off up the left bank of the Ba River joins the main railway. The line drops steeply through a cutting, crosses the river on a long bridge, and rises again to enter Rarawai Mill Yard.

Rarawai Mill is a smaller edition of Lautoka. It has the same basic facilities but the railway layout is different. There are several sidings serving raw sugar stores along the river bank. The cane reception yard and despatch sidings for raw sugar trains bound for Lautoka are on the far side of the mill buildings. A double track locomotive shed and workshop, with a lofty and rather impressive coaling hopper, and the weighbridge, separate the reception and despatch sidings for cane trains. The despatch or empty cane truck sidings differ from the same layout at Lautoka in that they are arranged as a stub yard with an entrance and exit by way of the third leg of the engine turning triangle. This layout has been in use for many years but it is inconvenient and plans were being made in 1957 to construct a deviation which would convert the despatch sidings into a through yard.

A number of branches radiate from the main line in the vicinity of Rarawai Mill. One follows the right bank of the Ba River and acts as a main stem for a number of other branches. Others serve the cane lands in the Ba River Delta. However none of them is as picturesque and individual as the main line east to Tavua. It began by running

alongside the road from Rarawai Mill to Ba Township. It crosses the main road on the very edge of the town: casting off, as it does, one of the few private sidings in Fiji. The railway runs between the main road and some shops. It passes the market where farmers and merchants gather each morning to sell produce, hardware, and Indian sweetmeats: to discuss the affairs of the day and the crops, and to haggle interminably. It passes the bus depot where motor lorries, which have been the victims of countless and often grotesque adaptations, wait for passengers. Then it shares a short bridge with the road, and as if unwilling to part company, performs a streetcar act down the middle of the main street. The scene is difficult to describe without being committed to several pages of prose pictures. Ba is, in many ways, the most Indian of the towns of Fiji. Its main streets are lined with exotic and usually very small shops. They proclaim their business and their ownership by signs in Hindustani, English and Fijian. The pavement is a Wild West affair of many levels—sometimes concrete, sometimes planks, and sometimes hard dirt. The shop fronts are festooned with boots and shoes, articles of clothing, pots and pans, and many other things. It would seem that the entire stock was either strung up outside or crammed into the window—until one peers into the badly lit and equally congested interior.

The railway returns to its more normal roadside habitat on the edge of the town. For twelve miles it runs there for short distances, frequently striking off through the cane fields and mangrove swamps in search of an easier grade or more direct route. But this is not easy to find, and, in one place, there is a grade of 1 in 27—almost 4%—but it is fortunately against empty trains. The railway takes to the hills about twelve miles from Rarawai. It climbs steeply round a horseshoe curve and over a pass, before dropping sharply to Tangi Tangi Tanks. The sidings at this place are the exchange point between the team of three steam locomotives which work cane trains back to Rarawai, and the Clyde Diesel which has sole responsibility for the remaining several miles of main line to Tavua. From Tavua another Diesel—a product of the English firm of Hudswell Clark—works trains over a number of lightly constructed branches serving the cane growing areas.

The motive power roster at Rarawai is a very patchwork affair. Its fragmentary nature is in decided contrast to the Lautoka roster which, until quite recently, had suffered few if any deletions. The list given below was correct in July 1957.

Road Numbers	Wheel Arrangement	Builder	Building Date
1	0-6-0	Hudswell Clarke	1938
3	0-6-0TT	John Fowler	1893
5	0-6-0TT	John Fowler	1903
7-10	0-6-2TT	John Fowler	1907 & 1914
12	0-6-0TT	Hudswell Clarke	1914
13	0-6-0	Hudswell Clarke	1914
33 & 34	0-6-0 Diesel	Clyde Engineering	1955 & 1957
No Number	0-6-0 Diesel	John Fowler	
"	0-6-0 Diesel	Hudswell Clarke	1952
"	0-6-0 Diesels (2)	Clyde Engineering	1957
	0-4-0 Tractors (4)	Simplex	

A former Rarawai locomotive—an 1886 vintage Fowler 0-4-0T—is still working at Nausori Mill. It was transferred there in 1910, and may have been first Number One on the Rarawai Roster. A Fowler 0-6-2TT—Rarawai No. 11—was transferred to Penang Mill in 1956. No. 6, a Fowler 0-6-2TT, and No. 14, a 1914 Hudswell Clarke 0-6-0, were scrapped in 1956. Numbers Twelve, Thirteen and Fourteen were imported to work sugar trains between Lautoka and Rarawai. Since these workings were taken over by Nos. 33 and 34, the first two Clyde Diesels at Rarawai, in early 1956, 13 has been one of the team of three locomotives regularly assigned to the Tangi Tangi run. No. 12 was built as a conventional side tank locomotive. It was later modified by adding a bogie tender. The main dimensions are the same as for the other Hudswell Clarke 0-6-0s. The Fowler Diesel is a steeple cab locomotive. It has 2′ 4″ diameter wheels and a wheelbase of 7′ 0″. This engine worked at Hambledon Mill in Queensland before being transferred to Fiji in the late 1930s. It is reputed to have experienced its hour of glory during the Second World War, when it propelled a home-made armoured train manned by New Zealand soldiers on the Nandronga Coast. The Hudswell Clarke Diesel is an older version of the locomotive operating on Vanua Levu. It has a funnel, and its cab controls are remarkably like those belonging to a steam locomotive. The Clyde Diesel employed at Tavua, one of the two unnumbered 1957 models, is fitted with dynamic brakes.

The rolling stock at Rarawai Mill is similar to that used at Lautoka. But there are, in addition, several very makeshift bogie vans for carrying stores, and three bogie tank wagons, built by Clyde Engineering in 1955 to carry Diesel oil. By 1957 they were no longer being used for that purpose and were to have been converted to carry molasses.

Rarawai Mill employs 1900 cane trucks, 63 coal trucks, 112 bogie flatcars, 125 ballast hoppers, 83 four-wheeled portable line trucks, 7 pairs of portable line bogies, and an assortment of tip trucks, pumping and poling truck to carry maintenance crews, and one insulated van.

As at Lautoka all traffic is controlled by lineside telephone, and movements depend greatly upon the state of cane stocks at the mill. If there is a shortage trains are shuffled so that all available loads of cane are given a clear line. If there is more cane on hand than the mill can cope with and the reception yard becomes full then trains on the line are liable to be delayed at convenient sidings until the bottleneck has cleared. As well as the line to Tavua, and the branches in its own vicinity, Rarawai Mill also controls traffic on the thirty mile line to Lautoka.

Impressions gained from a fairly intensive stndy of the Rarawai-Kavanangsau Light Railway, ineluding those gained from dusty office files, conversation with sugar company staff, as well as hundreds of miles travelled on locomotive footplates and trains, are many and often contradictory. It is a light railway in many senses, and it has a definite branch line atmosphere. But the main line, in particular, does a big job. Despite its small and slightly antique locomotives, its diminutive and simple rolling stock, its slow pace, and rudimentary train-running

arrangements it performs its allotted tasks—the transportation of raw materials, products and supplies for the Colonial Sugar Refining Company. It does so cheaply and efficiently, despite occasional derailments and traffic jams, and it does so without the aid of too many frills and trappings.

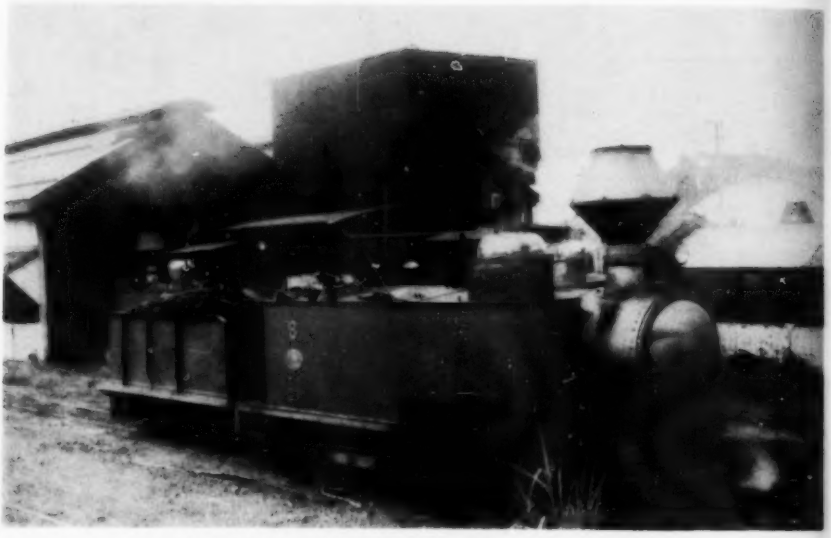
The atmosphere of the Rarawai-Kavanangasau Light Railway, and, to a certain extent, the other Fijian railways, can be best illustrated by a brief description of a journey by the Free Train from Lautoka to Kavanangasau. It is seven o'clock in the morning, only one hour after sunrise. The Free Train stands on a siding across the main line from the locomotive depot. The golden light of the early sun tints the sides of the green carriages and the green locomotive, and reflects from the polished brass of the steam dome. The time of the year is July—the cool season—and the air is crisp. At least one hundred assorted Indians and Fijians are already either crammed into the carriages, or standing around talking, and more are arriving all the time. The cane reception yard has become full during the night and the crew of the last train home have left their load on the main line beside the despatch yards. This has blocked the path of the Free Train, and it causes a good deal of argument, or rather violent discussion, among the crew and several bystanders before a solution is decided upon. The Free Train backs down past the locomotive depot, and avoids the obstruction by taking an alternative track on the far side of the engine shed. It stops in the despatch yard. Two trains of empty cane trucks have just left, and another, headed by No. 22, a Hudswell Clarke 1938 vintage 0-6-0, is waiting to follow us out. At 7.30 am, half an hour after advertised departure time, No. 18, our locomotive, gives a shrill whistle to order the travellers and the well-wishers to sort themselves out, and moves off in a cloud of steam from the cylinder cocks. The driver, fireman and I are old friends, and I have an open invitation to ride the footplate. The fireman's hard and narrow seat on the left side of the cab is mine for the journey, and I perch on it, bracing myself with my feet against the erratic motion of the locomotive as it rocks over the points at the entrance to the yard. The crew, as always in Fiji, are Indians. Mangaru has driven the Free Train for at least eighteen years, and he is proud of the fact. He is middle aged, bald and slightly corpulent with a grey moustache and very intelligent black eyes. His fireman is in his mid twenties, small and slight, with well-oiled long black hair.

For the first mile or more we run alongside the main road south from Lautoka. It is lined with tall trees. Then we head off towards the coast. We pass Saweni Points, the junction for a look heading inland over the hills at first, but later curving back to rejoin the main line several miles further on. It was once the main line, but the grades were too steep for heavy traffic, and it has been replaced by the coast route. Stopping occasionally for passengers waiting at the lineside, we potter along through dreary mangrove swamps. About eight o'clock we stop briefly at a siding and an old Chinaman, dressed in khaki trousers, canvas shoes, a woollen singlet, and a solar topee, begins a brisk trade with the passengers. He carries loaves of bread in baskets slung from his

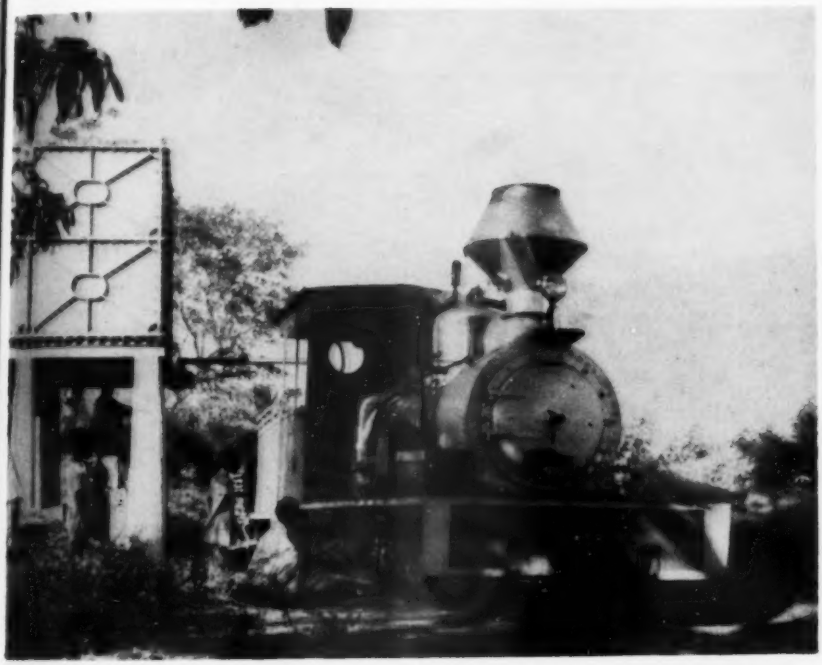
shoulders. But the Free Train cannot wait for such mundane matters, and we leave him with at least half of his stock still unsold. We emerge briefly onto the open coastline at Vunda Point, the site of an oil terminal, and then, after traversing some ledges and cuttings beside the sea, and passing through more mangroves, we enter a patch of forest. We emerge briefly to pass a village of Fijian grass huts, cross the main road, and, once more running through bush, head inland across the Nandi Plains. This part of the journey is about twenty miles in length and takes about two hours. We cross ancient through-truss road-rail bridges and pass some weirdly contorted volcanic hills. Most of the time we are running alongside a dirt road. The train stops briefly at the end of the main street of Nandi Township. We are once more running alongside the main road from Lautoka to Suva. A few miles on we stop to unload provisions at a district depot and track maintenance siding. Shortly afterwards the railway forsakes the road again and heads toward the sea. At first our route is along the open coast, with beaches of golden sand beside us, and shadow islands in the distance. Then the mangroves begin again, and they continue for many miles. We trundle sedately along—stopping at sidings every few miles to report progress to Lautoka, and rake out the locomotive firebox. The motion also receives careful attention and, if needed, some oil at these halts. About 12.15 pm we are forty miles south of Lautoka and have reached Na Savu Savu—the engine exchange point for cane trains. There are a number of sidings full of loaded and empty cane trucks, a triangle, water tanks, and locomotive servicing siding. The only buildings in sight are the local C. S. R. office, some cottages for labour employed in the area, a few assorted sheds, and a general store. Four locomotives from Lautoka are waiting to pick up their full trains and head for home. Two were running very close in front of us for about twenty miles after leaving Lautoka but thereafter they had fewer stops to make and beat us to Na Savu Savu by a substantial margin. A train of loaded cane trucks hauled by No. 13, an old Hudswell Clarke 0-6-0, arrives from Thuvu about 12.30 pm. We finish our lunch of curried meat and green vegetables eaten with a pancake called roti and washed down with sweet, lukewarm tea. The passengers have been making good use of the halt by patronising both the store and a temporary refreshment stall which has been set up beside the tracks. We dislodge them from these two refuges with a peremptory peep on the whistle, and resume our journey. The sun is right overhead, and, although it is the cool season, it is very hot and we are glad to be on the move again. At first we pass through miles of dreary mangrove country, sometimes stopping at sidings to clean the fire and ring Thuvu office. And then, after twelve or fifteen miles of muddy water and tangled vegetation, the grades begin. The railway is following the open coast again—sometimes running along ledges cut into the cliffs, and sometimes almost on the beach. We pass two picturesque Fijian settlements—brown grass huts clustered around a village green with the chief's house at one end and a wooden church at the other. This is real South Sea country with frequent coconut plantations. We come to a siding set in the midst of one of these plantations. The points

Fowler 0-6-2TT No. 9 and Hudswell Clarke 0-6-0 No. 1, two of three locomotives which have just worked empty cane trucks from Rarawai Mill, exchange loads with a Clyde 0-6-0 Diesel which works the Tangi Tangi —Tavua section. The picture was taken July, 1957, at the Tangi Tangi Tanks at the foot of the steep incline over Tangi Tangi.

Lambasa No. 9, the first Clyde Diesel to be imported into Fiji.



Rarawai—Kavanagasau Light Ry. 0-6-2TT, No. 8—Fowler, Lautoka Roster.



Rarawai—Kavanagasau Light Ry., Hudswell Clarke 0-6-0 No. 11, takes water at Singatoka, and some children gather to watch the driver oil the motion.

Rarawai—Kavanagasau Light Ry. (Lautoka Section) 0-6-0 No. 11 heading a loaded cane train takes water at Sigatoka.

Rarawai—Kavanagasau Light Ry. (Lautoka Section) 0-6-0 No. 11 (Hudswell Clarke No. 972/1912) hauling a load of sugar cane crosses Lawangga Bridge, Sigatoka. The cane is bound for Lautoka Mill some seventy odd miles from the scene of the photograph.

Rarawai—Kavanagasau Light Ry. (Lautoka Section) 0-6-0 No. 15 (Hudswell Clarke No. 1015/1913) at Thuvu—August 20, 1955.

are set for the loop which has several loads of cane on it. Our fireman bales out and runs ahead to set them right for our train. Mangaru has this operation well timed—we reach the points scarcely ten seconds after they have been changed. The fireman swings aboard and we continue on our way. But the next obstruction is not so easily disposed of. A loaded cane truck has been left on the main line little more than a mile from the junction of a short branch leading off to some sand pits. This time the train stops and the fireman again comes to the rescue. Assisted by a tall Sikh, who is dressed in his best clothes—white shirt and trousers, immaculate turban, and ceremonial sword hanging from his belt—he pushes the truck until it runs clear on to the branch. The fireman rejoins us, the Sikh climbs aboard the first carriage, and we resume our progress. About 3.00 pm we reach Thuvu. It is a railfan's paradise—a small marshalling yard, two track locomotive depot, a triangle, and several holiday cottages set beside a very pleasant bay. The sand is golden, and the sun hot, but there are shady trees to rest under and cool water to swim in. After almost eight hours of slow, jolting, hot and dirty riding on the footplate of No. 18 the temptation to leave the train and spend a few hours there is very strong. The bay is surrounded by hills on three sides, and the sea, with the creaming white line of the reef about a mile off shore, forms the fourth boundary.

After meat and other supplies for local sugar company employees has been unloaded the Free Train begins the last lap of its journey. Soon it is running very close to the edge of the lagoon, past Fijian villages, and then it heads inland through a long cutting past a mission school, where swarms of Fijian girls wave excitedly as we trundle by. The train rejoins the main road and remains with it, more or less continuously for the next few miles. About 4.30 pm we pass through Singatoka Township, and after stopping to take water near a creek, move on to pick up passengers near the beginning of the Singatoka River Bridge. Crossing the river we turn inland. The last eight miles of our journey take us at first through rolling cane lands, and then as the hills draw in very close, along ledges cut into the cliffs beside the river. This section is subject to frequent rock falls and the engine crew keep a careful lookout. Finally we emerge into a pocket of flat land and arrive at Kavanangasau. It is truly end of the line—a triangle and a few shanties set in the midst of cane fields with very little settlement in sight. The sun has just set. It is 6.30pm—time for the crew to prepare their locomotive for the overnight stay and tomorrow's return journey. The Free Train has been eleven hours covering the eighty odd miles of its journey from Lautoka.

The second of the four railway systems on Viti Levu serves a small sugar mill at Penang in the north east corner of the island. Penang relies almost entirely on rail transport. The mill is linked with a wharf at Ellington, seven miles away, and with cane growing areas in the Penang Valley and along the north coast towards Tavua. The end of this last line is only twenty or so miles from the end of the Rarawai-Kavanangasau Light Railway at Tavua.

Penang Mill was established in 1880. In the course of time it passed first to the Melbourne Trust Company, and later to its subsidiary, the Penang Sugar Company. In 1926 the C. S. R. acquired the mill and enlarged it. At first the tramway system only connected the mill with cane growing areas within a radius of four or five miles. But in 1916 it was linked by rail to Ellington Wharf, and one of the original lines was extended westwards along the north coast. The present mileage is between 27 and 30. The traffic comprises raw sugar and molasses from Penang to Ellington, coal and other imported necessities in the opposite direction, and cane from all parts of the system to Penang. In 1957 the motive power comprised a Hudswell Clarke 0-6-0 built in 1935, and a Fowler 0-6-2TT of 1910 vintage. The 0-6-0 is a lightweight version of the 0-6-0s on the Rarawai-Kavanangasau Light Railway. It was imported without a tender and has been fitted with one made by Clyde Engineering. The 0-6-2TT was transferred from Rarawai in 1956. It was formerly No. 11 on the Rarawai Roster. Penang Mill also employs three Simplex tractors. Until 1956 an 0-4-0, built by Andrew Barclay and Sons in 1921, was in use. It had been built as a side tank locomotive but the tanks had been removed at some stage of its existence and replaced by a four-wheeled tender. It had 2′ 2″ wheels, spaced 4′ 3″ apart, 8 x 12 cylinders, and a working pressure of 160 lbs per square inch. This engine had been one of three Barclay side tankers owned by the Penang Sugar Company. When first imported it carried the name Wai-ruku. The other two locomotives were Penang—a very diminutive 0-4-0T, with 6 x 10 cylinders, 1′ 10″ wheels, a 3′ 3″ wheelbase, and a working pressure of 160 lbs. It was the only steam locomotive in Fiji known to have been fitted with inside frames. It is believed to have been scrapped some years ago. In 1916 Ellington, an 0-4-0T more or less identical to Wai-ruku, was imported. This locomotive survives, still in its original form, at Baulevu on one of the tramways supplying cane to Nausori Mill. Motive power used by the C. S. R. Company at Penang during the early 1930s includes an 0-4-0 semi Diesel built by the Belgian firm of Moes, and two rail tractors which were bought from the firm of Dorman Long, the contractors for the Sydney Harbour Bridge.

Rolling stock is almost identical with that on the Rarawai-Kavanangasau Light Railway. There are, however, one or two differences. Molasses is carried in bogie tank wagons instead of four wheelers, and, apart from flatcars, there is no other bogie rolling stock, and no passenger cars.

The *Penang-Ellington* line is unusual in that it does not follow the coast for any great distance. It runs mainly inland, and, in one place, crosses a range of low hills, which provide some stiff climbing. Loads are usually limited to four or five flat cars and tankers and fifteen to twenty empty cane trucks. If this total is exceeded then it is necessary for the Hudswell Clarke 0-6-0—the regular locomotive on this run—to double the hill. Eight return trips are worked between Penang and Ellington during a twenty four hour working day. The branches around Ellington are worked by a Simplex tractor, which is stationed at the wharf, while the other two tractors work the branches in the vicinity

of the mill. The Fowler 0-6-0TT makes two daily return trips along the ten mile line following the coast to the west of Penang. The limit on this section is 55 loaded cane trucks.

It is unlikely that any extensions will be made to the Penang tramway system. Some new areas of cane land are being cultivated near Ellington but one is being carried from these blocks by road to a siding on the tramway.

Nausori Mill is twelve miles from Suva, the capital city. It is the oldest continuously owned and operated C. S. R. mill in Fiji: having been established in 1882. About 60% of the cane crushed at Nausori Mill is carried by trains of punts or barges. These craft are loaded with cane at points along the Rewa River, its tributaries, and some of the waterways forming its delta. The products of the mill and its imported bulk necessities are carried by barge down the Rewa River and along the coast to the port of Suva. The mill is also served by about twenty seven miles of tramways. One large system of branches and loops covering much of the plain around Nausori Township directly serves the mill. Another—about four miles long—runs from Baulevu on the Rewa River to Muanaweni: it serves the cane lands contained in a large bend of the river. Cane trucks are unloaded into punts by a hoist. Three small tramways, worked by oxen, discharge their loads into punts through chutes built on the river bank. Two locomotives are shedded at Nausori Mill—a Fowler 0-4-0T built in 1886, and a Fowler 0-6-0T, built in 1893. The 0-4-0T is very senile and is only used on maintenance trains. It has 8½ x 12 cylinders, a five foot wheelbase, two foot wheels, and a nominal working pressure of 120 lbs. It was transferred from Rarawai in 1910. The 0-6-0T was transferred from Lambasa in 1913. It has 9 x 12 cylinders, two foot wheels, and a 5′ 6″ wheelbase. The pressure is 140 lbs. Both locomotives possess small circular four wheeled water tanks. The line from Baulevu to Muanaweni is worked by a Barclay 0-4-0T, which was transferred from Penang in 1934. An 0-4-0T with two foot wheels, 8¼ x 12 cylinders, and a 3′ 10″ wheelbase, built by the French firm of Decauville, was scrapped some years ago. It bore the name Kidd. A Fowler 0-4-0ST built in 1886, and possessing 8¼ x 12 cylinders, two foot wheels, and a five foot wheelbase, worked at Nausori until, in 1953, it was transferred to Condong Mill in New South Wales.

Nausori Mill employs the same types of rolling stock as the other Fijian sugar mills. The lines at Nausori and Baulevu use the normal cane trucks, hopper wagons and portable line trucks, and carriages for carrying workmen. There are no bogie flatcars. The three animal powered tramways use only cane and portable line trucks.

In the 1880s the Colonial Sugar Refining Company operated a subsidiary mill at Viria, about twenty miles up the Rewa River from Nausori. This mill did not last long. It was served by a short tramway system which was remarkable for possessing the only railway tunnel in Fiji. After the Viria Mill closed down the tramway acted as a feeder to punts plying to and from Nausori. During the First World War, however, a twelve mile connecting line was laid between Muana-

weni, the terminus of the tramway from Baulevu, and the end of the existing tramway at Viria. This line possessed some fairly substantial engineering works, including several miles of ledge locations between hill and rivers, and several large bridges—one, spanning the Waindina River, was 258 feet long, and possessed a section which could be removed in times of flood. The connecting line was worked for ten or eleven years from the time of its completion in 1913. In the end it was abandoned after being partially washed out by floods.

Unlike the other Fijian sugar mills, which are situated in dry areas, Nausori is in Fiji's wet zone, and has an annual rainfall of about 120 inches. This is unfavourable to economical cane growing because it causes excessive moisture content. For this reason the C. S. R. Company intend to cease operations at Nausori after the 1959 season.

There is a medium-sized sugar mill at *Lambasa* on Vanua Levu. Its annual raw sugar output is about 20,000 tons. The mill is located on the left bank of the Namoli River, about five or six miles from the sea, and a mile from the town of Lambasa. The mill's products and necessities are carried by punt to a deep-water anchorage at Malau on the coast near the mouth of the river. Some 77 miles of tramway or light railway carry sugar cane from the growing areas to the mill. Lines extend to the east along the north coast for about 35 miles, several miles to the west, and inland in the vicinity of Lambasa. The route connecting the mill with districts to the east is 35 miles long. It runs along or near the coast for the first 26 miles. Then it follows the right bank of the Wainikoro River, heads across to the valley of the Langi Langi River, which it descends for a short distance before finally striking off again to the Numbu River, and the end of the line. This route is worked in two sections: from Lambasa to the Wainikoro River, and from there to the Numbu River. A fortnightly passenger service runs between Lambasa and the Wainikoro River. As far as is known there is no ordinance requiring the C. S. R. Company to operate this service but, as most of the country served by the line is without roads, this other free train is provided as a public service. Three open-sided bogie passenger carriages are used on the service. They are shorter and lower than the cars used on the Rarawai-Kavanangasau Light Railway. The passenger train rolling stock is normally kept in a carriage shed at the sidings near the Wainikoro Field Office and attached to a cane train leaving Wainikoro every second Thursday about midday and returning the following Saturday morning.

In 1957 the Lambasa system was worked by seven locomotives.

Number	Wheel Arrangement	Builder	Date
2	0-6-0TT	John Fowler	1896
3	0-6-2TT	John Fowler	1906
5	0-6-2TT	John Fowler	1907
6	0-6-0 petrol loco.	John Fowler	1926
7	0-6-0D	Hudswell Clarke	1937
8	0-4-0D	Drewry Car Company, London, England	1950
9	0-6-0D	Clyde Engineering	1955

No. 6 was one of two Fowler internal combustion locomotives imported by the C. S. R. during the 1920s. The other worked at Rarawai Mill until it was condemned in 1954. Both engines had two foot diameter drivers, and a 3′ 6″ wheelbase. Petrol and kerosene were used for fuel at different times. Lambasa No. 6 was withdrawn from service in 1956. No. 7 is similar in size and construction to the Hudswell Clarke Diesel employed at Tavua on the Rarawai system. No. 8, the Drewry Diesel, is a very small locomotive and might almost be classed as a shunting tractor. At least one similar locomotive is used by the C. S. R. at their Victoria Mill in Northern Queensland. No. 9 was the first Clyde Diesel imported into Fiji. Locomotives formerly allocated to Lambasa included an 0-4-2T called John O' Gaunt—doubtless named after John of Gaunt, Duke of Lancaster, a character in Shakespeare's historical play, Richard The Second. This locomotive was probably built during the early 1880s by John Fowler and Company. It had 6¼ x 10 cylinders, 2′ 1″ diameter coupled wheels, and a total wheelbase of eight feet. It was scrapped during the 1920s. No. 4 on the roster was an ill-fated Fowler 0-6-2TT built in 1907. The only mention of its fate in the records at Lambasa Mill was the cryptic note "blew up in shed." No. 9 is the second Lambasa locomotive to bear that number. The first was the Hudswell Clarke 0-6-0 which was retired from service in 1955, resurrected in 1957 and restored to life at Lautoka as No. 25. An 0-4-0 Simplex tractor is used at Lambasa to shunt cane trucks.

Rolling stock employed at Lambasa Mill comprises approximately 1840 cane trucks, and small numbers of bogie flatcars, storage vans, hopper wagons, and side tipping wagons. There are also, of course, three bogie passenger cars. A line car, or small petrol railcar, similar to others at Rarawai and Lautoka, is used to transport C. S. R. employees, and, in cases of need, members of the public.

The railways operated by the Colonial Sugar Refining Company in Fiji have much in common. Rolling stock, motive power, engineering work, and operating methods are usually similar and often identical. But there are also small and interesting local differences. The lines serving Lautoka and Rarawai Mill are definitely in the "light railway" class while the other systems can best be described as tramways. The distinction is difficult to explain. The Rarawai-Kavanangasau Light Railway is more than a private or ancillary railway: it is, to some extent, a common carrier. It has some long hauls and heavy traffic density. It gives the impression of a miniature, slightly quaint but nonetheless efficient railway. In atmosphere and procedure the other lines are more like logging railroads or plantation tramways. They do their jobs adequately and economically but they have a definite "branch line" or "mixed train daily" air. This is evident in many things: makeshift modifications to motive power or rolling stock, overgrown tracks, infrequent trains, and indifferently-groomed locomotives. Locomotives on the Rarawai-Kavanangasau Light Railway are usually well maintained and cleaned. On the smaller systems this is often not the case. At Lambasa, for instance, road numbers are painted on the cab side in yellow paint instead of being shown by cast brass numerals.

At least two of the three locomotives employed at Nausori and Baulevu have had all brakes removed, and they are usually stopped by judicious use of the reversing lever. One of the Fowler 0-6-0TTs at Lambasa has an obviously home-made tender, which is mounted on cast-off locomotive driving wheels. These examples, and many others, point the difference between the Rarawai-Kavanangasau Light Railway and its poor relations.

The story of rail transport in Fiji is not entirely concerned with the systems operated by the C. S. R. Company. There were formerly several small tramways. Between 1880 and 1920 there were a number of independent sugar mills. Only one of which lasted after the 1900s. It was situated at Navua, twenty seven miles west of Suva, and was the largest independent mill in Fiji, as well as the only one known to have used locomotives on its tramways. The Navua Mill was started during the 1880s. In 1906 it was bought by the *Vancouver-Fiji Sugar Company* of Canada. They operated the mill until 1922 when acute labour shortage led to its abandonment. The mill was located on the right bank of the Navua River—a few miles from the sea and directly opposite the town of Navua. Contact with the outside world was maintained by barges which conveyed products and necessities from the Mill to ships lying off the mouth of the river. Small coastal vessels also provided a service from a small wharf near the township to Suva. The Vancouver-Fiji Sugar Company operated almost thirty miles of two-foot gauge tramway covering much of the coastal plain surrounding Navua. The Navua River was crossed by a most impressive steel through-truss bridge which still carries the main road from Suva to Lautoka. Either three or four locomotives were in service at Navua. The remains of one reposed forlornly beside the main road until 1957, when most of the relics of the mill and its tramways were removed by a scrap metal dealer. Judging by that almost unrecognizable jumble of rusting metal enshrined in the roadside vegetation the locomotives used at Navua were either 0-4-0 or 0-6-0 side tankers. Most of the rolling stock used at Navua was bought by the C. S. R. Company. The formations of many of the abandoned tramways around Navua township were incorporated into public roads during the 1920s and early 30s.

Sawmilling has been, and still is, carried on in the larger islands of the Fiji Group. There is evidence of only one logging railway. It was located in the mountains of Northern Viti Levu. The rather scanty available information indicates that it was of 3′ 6″ gauge, laid with wooden rails, and was worked by a locomotive built round a farm tractor engine by the Union Foundry of Stratford, New Zealand. The length of the tramway was about three miles. It seems to have been very similar to the many short tractor-powered bush tramways which are still a prominent feature of the New Zealand sawmilling industry.

Light tramways worked, as far as is known, by animal or human power, served quarries near Suva, and wharves at Suva, Levuka and Mango. The tramway on Mango, a small privately owned island, once served a small sugar plantation and mill. There is no evidence of locomotives being used on it.

European settlement came too late to Fiji for the Colony to be caught up in the more hectic phase of the railway age. In this respect Fiji was the same as many other Pacific territories. But there was one proposal for a public or common carrier railway which very nearly became a reality.

In either 1911 or 1912 it was proposed that a railway be constructed by the Government of Fiji to connect Suva with Nausori and the Rewa Valley. The proposed line would have been either forty three or fifty three miles long—depending on the route adopted. Preliminary surveys and a report were prepared by a Mr. Routh, and a committee of Legislative Council members were appointed to report on the feasibility of such a railway, and whether it would be a worthwhile and economical proposition. After many calculations in terms of bunches of bananas, sugar cane and refined sugar, coal, passengers, and other sources of revenue, as well as estimates of the cost of constructing and equipping the railway, the Committee reported that they considered the proposed line to be both expedient and prudent. In November 1913 the Committee reported again: this time on the Routh Report and its proposals for the route to be adopted. They also provided further estimates of costs and likely revenue. They agreed with the Routh Report in all but two matters: the exit from Suva, and the crossing of the Rewa River. Alternative proposals, which had been submitted by the Colony's Commissioner of Works, were recommended. These suggested an inland route out of Suva, including a 67 chain tunnel, instead of the considerably longer coastal route proposed by Routh: and shifting the Rewa Bridge location a mile or two downstream to avoid expensive earthworks through the C. S. R. mill yard at Nausori. It was also recommended that the track gauge should be 2′ 6″. Construction of the line was estimated to cost no more than 323,429 Fijian pounds—approximately $800,000. Annual expenditure was estimated at £16,368 or about $65,000. The estimate of likely revenue was reduced because the C. S. R. Company had advised that they would not be using the light railway instead of their own transport facilities to carry their raw materials and products. This slightly "dog in the manger" is understandable. The choice of the 2′ 6″ gauge for the proposed light railway meant that through running would be impossible between it and the C. S. R. tramways in the Rewa Valley. Moreover the Company already had an adequate and economical transport system of their own, which would become partly superfluous if they used the Government railway. The Company also drew upon their thirty years' experience of constructing and operating light railways in the tropics to point out several serious underestimates in construction and operating costs, overestimates of future traffic, and faults in the design of proposed structures and locomotives. The Committee were not unduly concerned with these realistic if slightly pessimistic objections. They did, however, revise their construction cost estimates, raising them by about $35,000: and they also increased the proposed rate for general goods by about $1 a ton. Estimates for building and equipping the light railway included $30,000 for four locomotives. Unfortunately the specifications for these locomotives do not seem to

have been preserved. A list of staff necessary for the working of the railway, and the salaries or wages they would be paid, was also included in the report. A total of 170 persons would be required. Some economies would arise from the railway being operated by the Government's Public Works Department: the Commission of Works would be Chief Engineer for the railway, and the Locomotive Foreman at Suva would also be responsible for the combined Public Works—Railway workshops.

In September, 1914, after further proposals, counter proposals and modification of original plans and estimates, the Legislative Council Committee recommended that the Government apply to the Colonial Office in London for a loan to build and equip the railway. The Suva-Rewa Railway was very near to being a reality. But the last word was spoken by the Secretary of State for the Colonies, in London, when he refused to grant the loan, and recommended that road construction should take precedence over railways. His decision also contained the statement that no loans would be available until after the War. And so, like many other best-laid railway schemes, the Suva-Rewa Railway remained an embryo—existing only in the minds of a few men, and in Government files in Suva and London.

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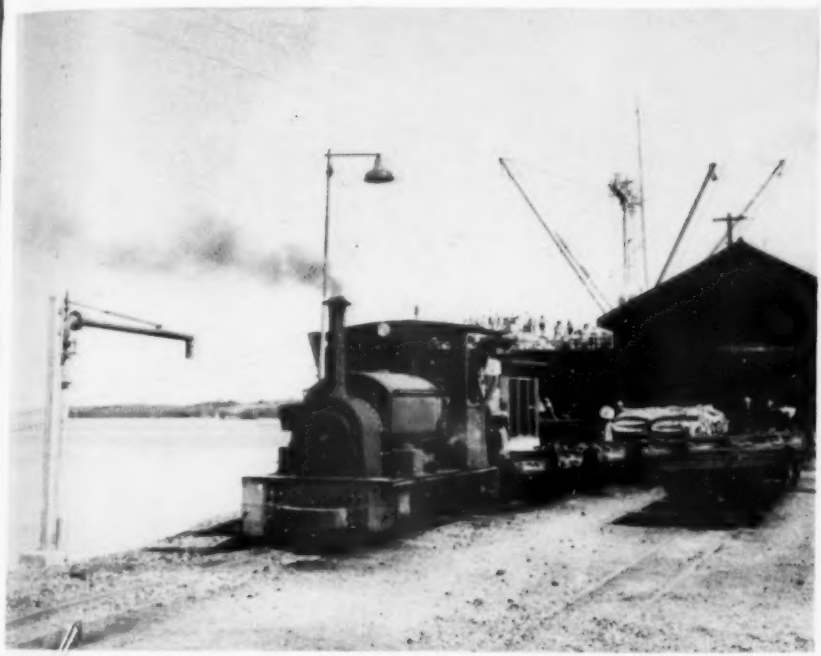
I wish to express my gratitude for information and assistance provided by the Colonial Sugar Refining Company of New South Wales and its officers; the Archives of Fiji and the Western Pacific High Commission; Mr. R. A. Derrick, Curator of the Fiji Museum; Mr. Little, Manager of the Navua Dairy Company; and several railway enthusiasts —namely, Messrs. J. B. Snell, R. D. Grant, Derek Cross and Michael Coghlan. Most of all I must acknowledge my indebtedness to Mr. P. F. Dyer, my partner in researches into the railways of Fiji, and companion during several weeks' intensive field study and travel in Fiji. Without Mr. Dyer's persistent investigation and wide technical knowledge the information I have given about locomotives and rolling stock would have been much less complete. I am also obliged to him for the map reproduced with this article.

Editor's Note:

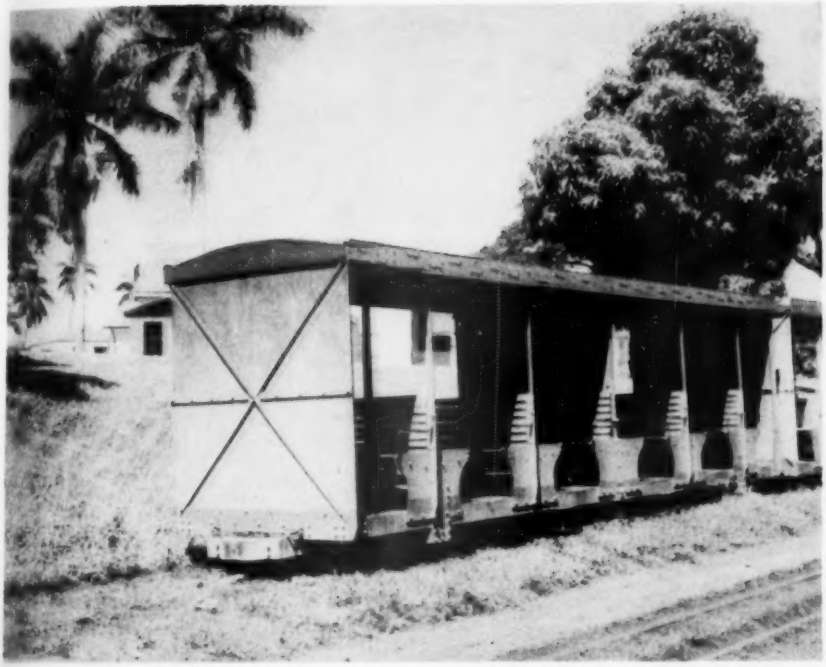
The author of this article is collecting material for a book describing the railways of Fiji in greater detail. There were many American servicemen who were in Fiji during World War II and some at least, must have retained their impressions of the local railways. Any one of our members who cares to supply his recollections or any sort of material on the sugar cane railways operated by the Colonial Sugar Refining Company Limited will find his assistance greatly appreciated. Also, if you know of anyone that served on these islands during the late war, will you give his name to the author. Full acknowledgement of all contributions will be made and any photographs or material loaned will be cared for and returned. The author should be addressed at 92 Northland Road, Wellington, W2, New Zealand.



Rarawai Kavanagasau Light Ry. (Lautoka Section) 0-4-0ST No. 18 (Hudswell Clarke No. 1055 of 1914) spends its days shunting four wheel flat cars loaded with bagged sugar and other freight between the wharf at Lautoka and the mill sidings.

No. 18 and the Free Train trundles across the Ba River Bridge in the rain on the return journey to Lautoka.

Lautoka 0-6-0 (Hudswell Clarke No. 1856/1950) No. 24 passes Lautoka Shed with train of empty cane trucks en route for Varoka, near Ba, Nov. 18, 1956.



Rarawai—Kavanagasau Light Ry. bogie open side passenger carriage. Lautoka—Nov. 21, 1955.

Rarawai No. 1, 0-6-0, enroute with cane from Tavua to Rarawai. Behind the locomotive a small street leads up the hill to the Ba Hotel—a favorite haunt of American servicemen during the war. No. 1 is doing the tramcar act in the main street of Ba.—Nov. 15, 1956.

Rarawai No. 12, 0-6-0TT, passes Rarawai Traffic Office after turning its train on the triangle preparatory to leaving for Varoka—Nov. 13, 1956.

The Case of Coleman vs. the New Haven Railroad

By R. F. Coggeshall

HE SEIZES TRAIN FOR $202 DEBT!

HULL, Que., July 11—(AP)—The wealthy Canadian Pacific Railway had owed Raymond Foucault $202.50 for five weeks and Foucault was tired of waiting. So he had the Ottawa-Maniwaki train—one locomotive, one tender, one baggage car and two passenger cars seized and ordered sold for auction. The railroad paid up in 24 hours.

The story goes back to Oct. 7, 1953, when Foucault, a laborer, pleaded guilty to beating a C. P. R. employee in the train. Foucault paid a $25 fine and court costs.

After long deliberation the railroad sued him for the time his victim had lost and compensation for the injured man. The suit was dismissed June 4, after Foucault's lawyer argued that the railway had failed to file its damage action within a year of the assault, as required by Quebec law. This time the court ordered the railroad to pay Foucault $202.50 costs.

When the money wasn't forthcoming, Foucault's lawyer applied for a seizure order. And on Monday, as the train was about to set out on its 90-mile run with commuters homeward bound to cottages in the Gatineau Hills, Court Bailiff Maurice Chevalier appeared to demand Foucault's $202.50 plus $14.25 Bailiff's fee.

Since Station Master J. R. Thibaudeau couldn't pay up, Chevalier "seized" the train as well as the benches, chairs, table and typewriter in the station. The auction was set for July 23 unless the railroad paid up. Then he put the train in custody of its crew and let it make its run. Late yesterday, a CPR attorney, Joseph St. Marie, arrived with the $216.75 and the case was closed.

* * * * *

The foregoing account appeared in a recent issue of the Toronto Globe-Mail, and brought to mind a tale with somewhat similar details that was narrated to the author by a friend who, in turn, had heard it from an old-time Baltimore patent attorney, whose name has since been forgotten.

The story concerned one John A. Coleman, a client of the Baltimore lawyer, and who was one of a partnership owning a small manufactory. His duties were various; he was an inventor and, either as a salesman or service man, he was a pretty constant traveler through southern New England. While on these trips he frequently would buy a railroad ticket for use the next day and then receive word from his home office of some customer, other than the one he had intended to see, who needed immediate attention. This involved a change in his itinerary and in that way he was constantly accumulating railroad tickets which he didn't use. He had no trouble in redeeming those of the roads in the eastern area, but at that time the New York, New Haven &

Hartford was what the name indicates. The extension to New London had not been built and the Boston traffic went through Hartford and Springfield, and in over the Boston & Albany. There is doubt that the road then owned the line from Hartford to Springfield. It was strictly a Connecticut corporation. This would pretty well date the incident, especially in conjunction with the alleged further fact that through cars were being run between New York and Boston. However, the exact date is ascertainable, as will be explained later.

In cleaning up his desk one day, Coleman turned up nearly one hundred dollars worth of unused N. Y. N. H. & H. mileage. He put these tickets in an envelope and when he was next in some good-sized Connecticut city he tried to redeem them, but the ticket office would have nothing to do with them. According to the rules of the road a ticket had to be used on the day for which it was stamped, or it became invalid. So Coleman put the tickets back in his pocket and waited until he was in New York, and then presented them at the Grand Central Station. He received rather more cursory treatment there than in Connecticut. The office was busy and wouldn't even discuss the matter with him, so his dander began to rise, for he was of a choleric disposition and he marched upstairs to the office of the President. He would not state the nature of his business but insisted that it was urgent and sat there for a very long time, but, toward the end of the afternoon, he was admitted to the august presence, stated his case and found himself ushered out of the office much more promptly than he had been admitted. His parting words were "I think I'll get something out of this Company yet."

He stayed overnight in New York and took the first train to Boston. When the conductor came through he offered him a ticket which he had bought in Boston a month before, reading "from Boston to New York." The conductor looked at it and said he couldn't take it, and the following conversation ensued.

Coleman: "Why not?"

Conductor: "It's out of date—it's a month old."

Coleman: "What difference does that make—the fares haven't changed in the month?"

Conductor: "Well, it reads the wrong way."

Coleman: "What difference does that make? It's just as many miles one way as the other, and it isn't any more uphill one way than the other."

Conductor: "Well, it just won't do—you'll have to have another ticket."

Coleman: "Now listen! This shows that I have paid for transportation between Boston and New York, and it's what I now propose to have."

Conductor: "I can't accept that ticket."

Coleman: "Give me the reason why you can't."

Conductor: "It would be against the rules of the road."

Coleman: "I'll not urge any man in your position to violate his rules, but I do tell you that you won't get any other ticket."

Conductor: "That's all right, you can pay cash."

Coleman: "No, I won't pay cash. I am going to ride on that ticket and nothing else."

Conductor: "I shall have to ask you to leave the train at the next station."

Coleman: "I shall refuse to leave the train."

Conductor: "Then I'll have to put you off."

Coleman: "Well, I suppose you can do that."

The conductor passed on and Coleman busied himself in getting the names and addresses of the passengers within earshot. When the train reached Stamford the conductor came and asked Coleman if he would pay cash. On receiving a negative answer he asked him to leave the train. Coleman refusing, the conductor called a brakeman and told him to put the passenger off the train. Coleman offered a nominal resistance, such that he could assert that he had been forcibly ejected and then marched into the railroad station and bought a ticket from Stamford to Boston. He came out just as the train was about to go and started to climb into his car, when the conductor, who was two or three cars down the line, saw him, thought he was trying to jump the train and called to the brakeman to yank him off. This time he really was spilled on the platform and had his hat smashed. Picking himself up, he showed the conductor his new ticket and the conductor said, "That's all right, you fool, why didn't you tell me you had a new ticket; get on and ride." Coleman replied, "No. I don't care to ride on your train, now."

He waited for the next train and upon reaching Boston at the end of the afternoon, thoroughly mad, went straight to his lawyers' office. They allowed him to blow off steam until the pressure had dropped and then said, "Now, Mr. Coleman, be reasonable. You want to sue the railroad for that, but the New Haven is a Connecticut corporation and you would have to bring suit in a Connecticut court. It's a notorious fact that the New Haven dominates every court in Connecticut. You would never get a judgment. You might probably bring this to the attention of a Federal court, but it would be a very tedious process and the chances are that they would throw it out because it's too trivial a case. You'd better go home and have a good night's sleep and make the best of this vexing situation."

Coleman went home but he reappeared in the lawyers' office early the next morning with a new idea. He considered that he had an unsatisfied claim against the New Haven. The through trains from New York to Boston were made up of N. Y. N. H. & H. cars. They were good-looking trains—at least they looked good to him. Why couldn't he attach one of them? The lawyers agreed that it might be a good idea. So, just before the noon Express was about to pull out of the Kneeland Street station, a deputy sheriff appeared with a writ for the attachment of the train. This was something quite new to the conductor and station master, and, after putting their heads together, they wired New York for instructions. Very soon the President of the road himself got into the dialogue. He remarked that this was

that crazy fool Coleman who had been in his office just two days ago, and he was not prepared to tolerate any of his nonsense. He wired to the station master, "Pull train." The station master wired back, "Can't. Sheriff is on train." The President replied, "Pull sheriff too."

The train was started and at Worcester it was met by two men from the Worcester County sheriff's office, who handed the conductor and the engineer telegrams from the Attorney General of Massachusetts, telling them to bring the train back to Boston. They realized that if they took the train out of the State it would be contempt of Commonwealth and a pretty serious offense, so they wired ahead to Springfield to make up a new train, and when they got there they transferred the passengers, turned the engine around and pulled the original train back to Boston. Long before it got there, the road had put up bonds to release it from attachment and the railroad's operations became normal, but the action under the writ brought the case under a Massachusetts court and Coleman sued the road for $10,000 damages.

When the case came to trial the attorney for the road was quite unable to take it seriously. He thought that Coleman's behavior was the most outrageous, dastardly piece of conduct that ever had been perpetrated. After Coleman had finished his testimony, the road's attorney took him for cross-examination.

"Mr. Coleman," said he, after some preliminary questions, "I see you as an assertive, arbitrary man who is determined to have his own way and who enjoys making trouble for other people. I picture you (pray correct me if you think I am in error) as a man who stops at the grocery store on his way home at night and asks for a peck of potatoes. When these are wrapped he says, 'No, I don't want these—give me a bag of flour.' And when that is ready, he says, 'No, I don't want this—send up a barrel of apples.' ". "No," Coleman replied, "I don't think that is right. I think I am a man who orders the barrel of apples in the first instance and when the barrel is paid for, *paid for*, mind you, and delivered to me, it is no longer of the storekeeper's business whether I knock the top in and eat from the top down, or up-end it and eat from the bottom up." (Laughter in the court).

His replies were all pungent and they applied to the case. The jury fell in love with him and gave him his verdict almost without leaving the box. Of course, the road appealed and sent around a different lawyer who expressed the belief that a fair settlement could be reached, to which Coleman replied, "Oh yes, it seems to me that through the actions of the courts we are in a very good way to reach a fair settlement."

"Well," said the lawyer, "if you insist on fighting, you must expect that the road will fight back and I would simply remind you that you are an individual of not unlimited means, up against a pretty wealthy corporation."

Said Coleman, "I have heard of a rat that gnawed a hole and sank a big ship and I think I'll let a little water into this corporation of yours."

So the case pursued its leisurely way up through the higher courts. Coleman won each round of the battle and when the final judgment

was returned he said to his lawyers, "Well, I guess there isn't much left for me."

"Mr. Coleman," they replied, "if we could afford it we wouldn't charge you a cent, for we have enjoyed the case very much and, incidentally, it has brought us some very nice publicity. We have figured our bare costs at about $4,400 and we will be satisfied with that."

"Oh, Hell," said Coleman, "take half of it anyhow."

It has been said that the decisions in this case had quite an important bearing in determining legal obligations of railroads in the matter of the reading of tickets and the redemption of unused mileage.

* * * * *

It would have been nice if all the facts were as presented and the story ended that way. However, the author attempted to verify the tale and, after some time, located what appears to be the truth of the affair in the proceedings of the courts of Massachusetts. There the case reference is as follows:—John A. Coleman vs. N. Y. N. H. & H. R. R., Supreme Judicial Court of Massachusetts. November, 1870, in Boston, Mass. reports (Browne) Vol. 105, page 160—for assault and battery in expelling him from a car at Stamford, Conn., in which he was wrongfully. Jury found for the plaintiff; damages $3450.

Search of the legal record discloses the following, which varies quite considerably from the original version. The case was tried in the Suffolk Court. The incident did take place at Stamford. There is no record of what led to Coleman's behavior, which was not quite as narrated in the first place. He had bought a ticket from New York to Hartford and had passed through the gate with it, but he evidently tried to save this for a future ride and presented to the conductor some sort of a limited ticket, which read the wrong way and which the conductor was justified in rejecting. When they tried to eject him at Stamford he offered much more than nominal resistance; he hooked his arm around the arm of the seat and hung on so tenaciously that it took several men to move him and, when they did, they took the arm of the seat with him. The other passengers tried to pay no attention to what was going on, being disinclined to get involved with such a dominant organization as the mighty railroad on the one hand, or with such a pugnacious individual on the other.

What made the matter really serious was the presence of a young man on the staff of the Stamford station master. He was the son of a high official of the road. His name is mentioned in the court record. Nepotism was much more in evidence in those days than it is now and the sons of high officials, who were "learning the trade," very generally received a degree of deference and assumed an authority to which their actual status by no means entitled them. This trouble with passengers on the train was of no concern to the young man in the station, unless the passengers actually threatened the train crew, but he injected himself into the fracas and not only did his share of pulling and hauling, but struck Coleman several powerful blows with his fist, and when Coleman was finally out on the car platform, the young man pushed

him off and down the steps so that he fell very heavily on the station platform, either causing or aggravating a serious hernia. How Coleman managed from that point on, how he got himself to Boston is not related.

His case against the road was simply a charge of assault and battery. The road tried to defend itself by taking a most extraordinary position, namely, that the young man who inflicted the real damage had acted outside of his assigned duties and, therefore, was not acting as a responsible member of the road's staff, but as a private individual and, therefore, the road could not be held responsible for his extra-curricular activities. The court brushed aside this quite feeble defense and awarded Coleman damages of $5,000. Thus the amount of damages is in effect deflated about in proportion to the rest of the story. However, what is perhaps the most interesting point, certainly to a lawyer, is not disclosed by the rather brief review of the case in the official minutes. There is no mention of how an action of assault and battery committed in Connecticut came under the jurisdiction of a Massachusetts court. Is it possible that Coleman actually did attach that train and inaugurate the extraordinary series of events as narrated! *That* would be really worth knowing.

A DATE TO REMEMBER—MARCH 18, 1960

On the above date, the British Railways accepted delivery from the Swindon Works, the locomotive "Evening Star", number 92220, 2-10-0 type, Class "9" for freight service. For over one hundred fifty years, the steam locomotive has polished the rails in the British Isles and now the end has come since this is the last steam locomotive that will be built.

The locomotive has already been marked for preservation along with the many other famous locomotives which have been preserved in that country.

> "No other machine, in its day, has been a more faithful friend to mankind and has contributed more to the cause of industrial prosperity in this, the land of its birth, and throughout the world. No other machine is so human and so gentle and yet, when unleashed, is capable of such prodigies of strength—nothing quite so graceful in action and nothing quite so romantic."

No lover of the steam locomotive will take exception to the above remarks which were delivered at the time the locomotive was received by the British Railways.

Seattle Coal & Transportation Company

By Homer G. Benton

Seattle, named after a friendly Indian Chief, was a small settlement of Elliott Bay on Puget Sound in Washington Territory. Its early support was almost entirely derived from Henry Yesler's lumber mill at the lower end of Skid Row, however, the development of the coal industry proved a good tonic to Seattle's growth.

Several men were working southeast of Seattle on the Black River, in 1853, when they stumbled upon traces of coal. In time four of them were able to dig out a sufficient amount to ship to Seattle. Later on a quantity was sent by vessel to San Francisco where it brought the astonishing price of $30 a ton. But nothing further was done.

Later on L. B. Andrews uncovered, on his ranch east of Lake Washington, a vein of black diamonds in 1862. Along with a local blacksmith he established a small mining enterprise and prepared to work the mineral deposit. Though a quantity of this coal was burned in vessels at Seattle, eliciting much comment and interest in its steaming qualities, the project never succeeded.

Two years later Edwin Richardson, a surveyor, was working along Coal Creek, east of Lake Washington and discovered the Coal Creek deposits. He took little interest in them himself but the news of the discovery brought others into the picture.

However, in each of these discoveries there were two great obstacles that proved to be insurmountable. First, there was the inability to secure money to develop the mine into an economical operation. Second, there was the difficulty of transporting the mined product to Seattle, the marketing area.

In 1866 the Lake Washington Coal Company was incorporated to begin mining operations at the Coal Creek deposits. The incorporators were Rev. George F. Whitworth, president of the University of Washington, Rev. Daniel Bagley, John Ross, P. H. Lewis and Selucius Garfielde. The company opened the first tunnel above Coal Creek and by using very primitive methods managed to begin the mining of coal. This coal was sacked and packed out on the backs of mules to Seattle for sale to the residents. They made one shipment to San Francisco but failed to continue this area of operations. Later improvements, cutting of a road through the virgin forest, enabled them to haul the product in mule drawn wagons to the Black River. Here the lumps of coal were dumped into low draft barges which had been towed up the river for this purpose. An average day's work would result in the shipment of a little better than two tons.

Again it was the lack of sufficient capital that hindered the operations. Money was badly needed to develop the mines to a greater capacity and a more efficient means of operation. Also needed was an improved method of transporting the increased production. Various efforts were made to attract outside capital to invest in the endeavor but they

all resulted in failure. Even the planned sale of the industry to some California men in 1868 fell through.

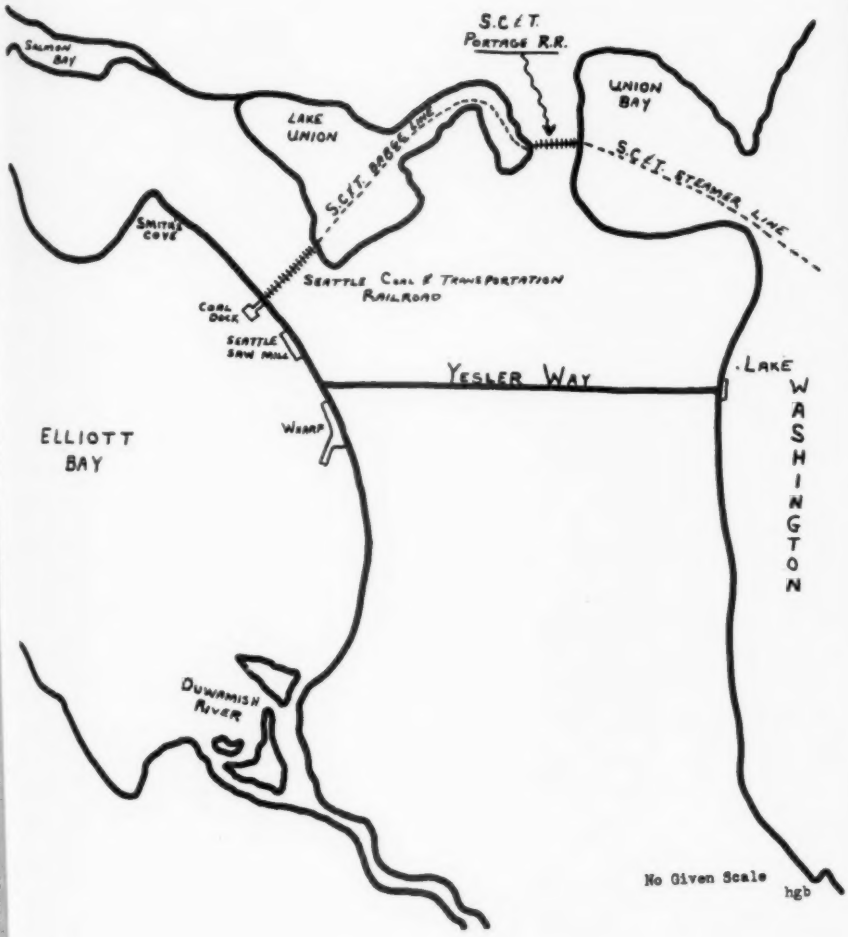
Coal operations continued on a reduced scale as the industry limped along as best it could. However, liabilities soon caught up with them and in 1869 the company was sold to several San Francisco men. Thus in February of 1870 the Seattle Coal Company was organized to assume control of the property. The first step of the new organization was to build a wooden tramway, three miles in length, from the mine to Lake Washington. It was built to a gauge of six feet with wooden logs capped with strap iron to serve as rails. Purpose of the super gauge was "to reduce the wear." Each car was built of wood and was capable of two tons capacity. Motive power was a span of mules.

By the end of 1870 the new company was moving about fifty tons of coal per day from the mine to the Seattle harbor. The drawback to the immediate success of the operation was the complicated character and high cost of the operations. The coal was reportedly transferred eleven times during this trip at a total transportation cost of $5.00 a ton. In general it followed the following pattern: after the coal reached the head of the mine it was dumped into the tramway cars to be drawn by mules to Lake Washington. Here it was unloaded from a trestle into the Steamer Clara for the voyage across Lake Washington. Upon its arrival in Union Bay the black diamonds were transferred to rail cars for a trip over the portage, with horses pulling the cars, to the wharf on Lake Union. Here the cars were emptied onto the Steamer Phantom for the brief trip across Lake Union. At the conclusion of its lake trip the coal was once again loaded into cars for the horses to tow down Pike Street to the Wharf or storage yards on Elliott Bay.

Early in 1871 mining engineers were sent up by the San Francisco owners to examine the property and report on the operations. The report indicated that the property would probably produce more coal than any other mine then being worked on the Pacific Coast, however, improvements would have to be made in transporting it to the harbor. With this data in hand the owners prepared to modernize and improve their valuable operations.

First step was the incorporation of the Seattle Coal & Transportation Company on May 8, 1871 with $600,000 capital stock at $100 a share. Officers of the new company were W. B. Cummings, President; S. B. Boswell, Vice-President; H. L. Hutchinson and C. B. Shattuck. They placed in charge a Mr. S. Dinsmore who was to revamp the operations for the handling of the coal to tidewater. His first job was to improve the incline section between the mine and Lake Washington. The gauge was narrowed to three feet and prepared for the new rail that was to be substituted for the worn out strap iron. In September he turned his attention to the Seattle section of track on Pike Street where the old six foot gauge tramway merely ran over every depression and elevation of the land. A gang of sixty men graded a new and easy line with deep cuts and fills for the new track that was to be laid at one half the old gauge.

SEATTLE COAL & TRANSPORTATION COMPANY OPERATIONS IN SEATTLE AREA IN 1874



Courtesy Seattle Historical Society

Maiden Journey of the "Ant" on March 22, 1872 on the old Pike Street R. R. in Seattle. Excursion crowd gathers about locomotive at the barge landing on Lake Union.

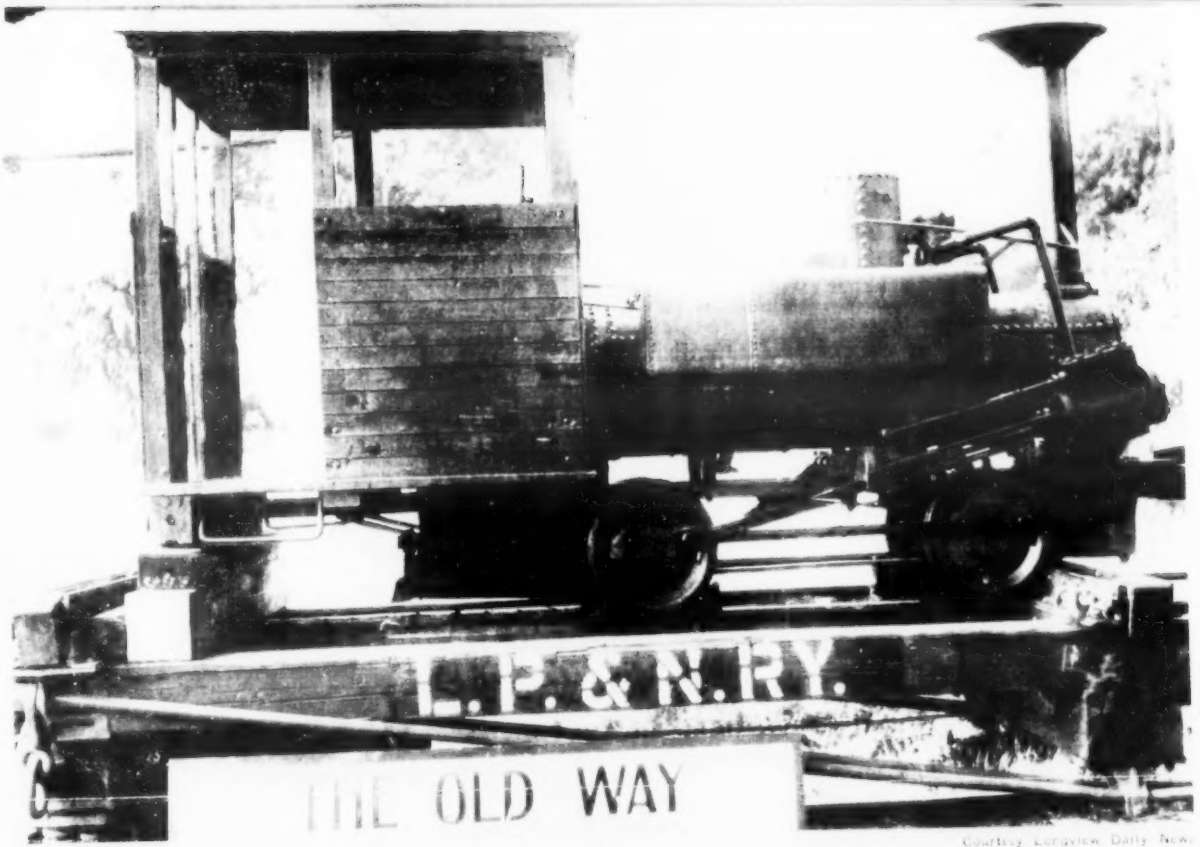
Courtesy Seattle Historical Society

Malden Journey of the "Ant" on March 22, 1872 on the old Pike Street R. R. in Seattle. Excursion crowd gathers about locomotive at the barge landing on Lake Union.

Courtesy V. Goe and J. T. Labbe

B. F. Brock's Mosquito & Coal Creek R. R. in Cowlitz County used the "Ant" as the first logging locomotive in the Columbia River region. Here it is seen backing a train of logs to the chutes.

Seattle Coal & Trans. Co. "Geo. C. Bode"—Baldwin #3603, 5-1874.



Courtesy Longview Daily News

The "Ark" at Longview, Washington in the 1920's.

A local concern, Lord & Hall, was given the contract to build all the new coal cars that would now be needed for the progressive operations. Forty pairs of iron cast wheels and axles were sent up from San Francisco on the Barkentine Harrison along with 3¼ miles of T rail for the reconstructed incline section.

On October 16, 1871 the *Seattle Intelligencer* carried the following item under "Telegraphic News." "San Francisco. Oct 13. The trial of the first narrow gauge locomotive ever built on the Pacific Coast came off at the Fulton Foundry today, and it was pronounced a decided success. It weighs seven tons, and is a beautiful piece of machinery. It was built for the Seattle Coal Company, and will be employed on the tramway between Lake Washington and their coal mine." At the same time the *San Francisco Mining and Scientific Press* on October 21, 1871 contained the following item. "The Fulton Foundry have (sic) just completed one and are building another narrow gauge locomotive, the first ever made on the coast. One is for the Seattle Coal and Transportation Company and the other for Flanagan and Mann of the Coos Bay Company. One of these engines had its trial trip this week which was very satisfactory."

So it was on November 21, 1871 that the first steam locomotive to arrive in Puget Sound came on the deck of the Barkentine Harrison. Sixteen horses were pressed into duty to haul the lone iron horse from the wharf to the new track on Pike street. Thus on Christmas Day Seattle's new engine, with a coal fire in its boiler, was given its trial run.

The year 1872 opened with the following improvements already made for the coal company. Capacity of the mines increased, forty new coal cars built, a new steam locomotive on the line, regraded and realigned roadbed of the mine tramway, replacement of strap iron rails with T rail, more men under employment, improved grade on ¾ mile portage and work being completed on one mile of the line from the sound to Lake Union. They reported an expenditure of $100,000 to accomplish this and expressed faith that it would handsomely pay off in the days ahead.

On March 22, 1872 a holiday was declared for the city of Seattle. Business was stopped, schools were let out and pioneers of the early days journeyed to be in attendance at the first trip of the new steam locomotive. The citizens were invited to ride the excursion train, first to be run in the territory, while the Pioneer Association recorded the names of all those in attendance. Sitting on the new track, puffing black smoke, was a small eight-wheel pony locomotive with a tall smokestack. Coupled behind were eight new four-wheeled coal cars, just recently built, with benches installed in each car so that it would hold twelve persons. The first trip, with the usual dignitaries, left the city at 11 o'clock in the forenoon, after appropriate ceremonies. With the conclusion of the brass band number the train jerked into motion and made a snappy run to Lake Union.

Upon arrival at the Lake Union wharf the visitors inspected the Steamer Phantom and then taking seats on the scow were towed about the lake for a gala afternoon. Throughout the day successive trips were

made every half hour until sundown when the little railroad engine had to cease because it had no headlight. The *Puget Sound Dispatch* noted that the invitation of Mr. Dinsmore "was responded to with a unanimity never before equalled on any occasion in the city."

After the celebration the new locomotive, later to receive the nickname "Ant," settled down to the daily chore of pulling dirty coal cars. It would pick up its load of empties from the wharf on Elliott Bay and run over the one mile of newly leveled track to the Lake Union pier. Here it would shove the cars on the deck of the scow, which had been laid with rails, and then hustle on board itself for the three mile trip over the lake. At the other side it would pull its string of cars off and over a ¾ mile portage to Lake Washington where it would again load on a scow. A steam tug would pull it eight miles across Lake Washington to a connection with the incline tramway from the coal mine. Once again the "Ant" would unload itself and then the cars for the trip to the mines where it would exchange the empties for the loaded coal cars and repeat in reverse the entire process.

Coal now loaded into cars at the mine did not have to be transferred until it reached its destination in Seattle. The total distance from the mines to Seattle was seventeen miles, four of which were by rail. With the new equipment and the rebuilding of the old six foot gauge coal cars there were now 100 cars available for service on the line.

In San Francisco coal was now bringing $12 a ton; so with the cutting of transportation costs the company was prospering. The daily output of the mines now reached the total of eighty tons a day, all hauled in two ton cars. To handle this trade seven vessels were in charter service to haul the coal to California. An increase in the capital stock, to $3,000,000, of the Seattle Coal and Transportation Company was made on July 30, 1873.

Description of the property and its operations were given and it revealed the following:

Coal lands in Coal Creek area at 1100 acres
Town of Newcastle
Mining facilities at coal mine
Four miles of railroad
One steam locomotive
160 two ton coal cars
Forty horses
Two steam tugs
Two large barges
Four wharfs on Lake Union & Washington
Wharf and Bunkers on Elliott Bay
120 men employed

Early in 1874 found the mines shut down and the transportation facilities in storage as they awaited a visit by the new stockholders from California. The *New York Sun* ran a piece on February 25, 1874 stating that "The Seattle coal is of a superior quality, but its production has

hitherto been monopolized almost entirely by A. Hayward of San Francisco, and the Bank of California . . ." The change in ownership of the majority of stock resulted in Frank Blair and George C. Bode assuming control.

Following the visit and decision of the capitalists, T. A. Blake a mining engineer arrived on the scene to survey a new location line for the railroad from the company mine to Lake Washington.

This line was to be ¼ of a mile longer and would replace the old uneven three mile line now in use. In May, 1874, two miles of railroad iron arrived and it was quickly taken to the east side of Lake Washington to begin laying this section.

Orders were now placed by the company, in anticipation of increased demands for their product, for a larger locomotive and a new steamer for Lake Union. On August 4th the new Steamer was launched on Lake Union by a champagne bottle in the hand of Mrs. Dexter Horton. Named the Linda C. Gray it was 125 feet long and able to carry 100 tons of coal. One month later the Bark Aureola arrived, September 5, 1874, with the new locomotive for the coal road. The engine had been built by the Baldwin Locomotive Works of Philadelphia, and was named GEO. C. BODE for the president of the Seattle Coal & Transportation Company.

Histories of Seattle have always stated that the first locomotive in the Puget Sound area was the "Bode" which made the first trip in March of 1872. However, Baldwin records indicate the "Bode" was built with construction number 3603 in May of 1874, thus it could not have been utilized earlier. It has been noted already in the narrative the arrival and utilization of the first locomotive, the "Ant."

The *Seattle Intelligencer* stated on September 12, 1874, "The new engine for the Seattle Coal and Transportation Company is being fitted up on Yesler Wharf. She is expected to be ready early next week, when a temporary track will be laid through the streets to the company's depot and the steam got up (sic) to propel her to her destination." Mr. G. W. Bullene put her in running order and by the end of the month the "Bode" was on the Pike Street track.

At this time the "Ant" was assigned to work the mine to Lake Washington section while the "Bode" was to be used on the Seattle end and on the portage, making the trip between the two sections of separated track on the scow with the coal cars. On a fall evening in October, nine men were riding in the coal cars up the incline to the mines when the pin fell out of the coupling and the cars ran away down the grade. Hastily the men unloaded as the cars sped down the grade to end up in the ditch after hitting a large dog.

Work, after having been stopped for one year, was now commenced again on a larger scale. Extensive improvements had been made in the area of the transportation and delivery of the coal. "After the cars are loaded with coal at the mine they are run down an incline to the Lake to be conveyed across on the Steamer Chehalis, to the portage, where they are taken from the steamer by the large locomotive ("Bode") . . . and drawn across the portage, and upon the Steamer Linda G. Gray,

and by it the cars and engine are taken across Lake Union where the locomotive then brings them to the chutes at Seattle." The output of the mine was soon increased to 150 tons a day.

During December the "Geo. C. Bode" was bringing in a train of loaded cars from the Lake Union dock when it became involved in its first accident. Upon emerging from a cut on the outskirts of town it suddenly jumped the track and rolled down an eight foot embankment. A severe mishap was prevented by its uncoupling from the cars before the unheralded tumble. As usual a number of persons were riding the coal cars into town, even three upon the engine, however, they suffered only a few bad bruises. In a few days the locomotive was rerailed, by means of blocks and tackle, no worse for its unscheduled journey.

On the following January 16th, 1875 the Steamer Chehalis, on a cold and windy day, was towing a coal barge of eighteen loaded coal cars across Lake Washington. Suddenly the wind increased in intensity and lashed the vessel and barge unmercifully. When they were within a mile of the shore the loaded barge gave a sudden lurch and dropped into the lake with a total loss to the company of about $2000. The January weather continued to plague the operations of the transportation system. One week later the lakes froze over and all operations had to be suspended for two weeks until the men could cut a channel in the ice for the passage of the steamers.

Business continued to increase to the point that on March 6, 1875 the local paper revealed that "In the course of another month the Seattle Coal Company will have another locomotive—the same size and kind of the one which is now used between this city and Lake Union—on hand for use on the track between the coal mine and Lake Washington. Upon its arrival here, the one at present used on that track will be transferred to the ¾ mile track across the portage." They also announced that they were building larger wharfs, bunkers, barges and more cars which the local shops were now turning out at the rate of two a day.

The new locomotive, named "Georginia," arrived June 22, 1875 on board the Bark J. B. Bell, eleven days out of San Francisco. With the new barge in use on Lake Washington and the purchase of a larger steamer, "Addie", the output of the mines rose to an average of 240 tons a day. By the following October it was 300 tons and "they expect to reach 400 tons when the new wharf, 160 feet by 70 feet, with double bunkers (on Elliott Bay) are completed, and additional cars are built."

Much of the coal being mined was used locally for heating purposes but the greatest amount was shipped to San Francisco for the Pacific Railroad Company. The new contract, which now called for 6,000 tons a month delivered at San Francisco, was signed in Seattle on July 22, 1875 by C. P. Huntington and his associates.

Records for the summer of 1875 indicate the following list of officials and chief employees in Seattle:

Mine Superintendent—C. B. Shattuck
Transportation Superintendent—C. B. Shattuck
Roadmaster—T. J. Flannagan
Chief Clerk—W. H. Taylor

Master Blacksmith—G. W. Farrhurst
Master Carpenter—A. M. Pringle
Master Mechanic—B. D. Jones
Section Foreman—A. Stockwell
Steamer Captain (Linda C. Gray)—M. Dinsmore
Steamer Engineer (Linda C. Gray)—H. McCarthy
Steamer Captain (Addie)—W. Bailey
Steamer Engineer (Addie)—T. D. Hinckley
Locomotive Engineer (Geo. C. Bode)—W. Merwin
Locomotive Engineer (Georginia)—T. C. Benjamin

After the Northern Pacific, in 1873, had bypassed Seattle to select New Tacoma as its terminal the citizens of Seattle rallied to begin construction of their own transcontinental railroad, the Seattle & Walla Walla Railroad & Transportation Company. Preliminary work was done on the track, a three foot narrow gauge, in the direction of Renton. During these construction days the builders found use for a small locomotive to haul supplies out to track's end. Since the small pony locomotive was no longer in regular use on the portage they negotiated for a lease of its services. Thus in February of 1877 the job of moving the "Ant" from the Pike Street road to the new railroad in the tideflats was begun. It turned out to be a Herculean task. The horses and wagon became so mired down in the mud of Seattle's streets that it became necessary to plank the roadway.

Current operations of the coal road called for the "Geo. C. Bode" to leave the wharves at Pike Street and fifteen minutes later be on board the barge and off for the portage line. The same locomotive pulled the thirty-six cars from the barge and hauled them over the portage line to the steamer on Lake Washington. Here it effected a transfer of its empties for loaded cars and returned. The Georginia handled the trips from the mine to Lake Washington and return.

By June of 1877 the Seattle & Walla Walla Railroad was in operation and the owners of the Seattle Coal Transportation Company were growing weary of the task of operating a rail and navigation outfit to move their product. Not only did it require considerable time and employ considerable manpower but it was becoming increasingly expensive. It was only natural that they would cast a longing eye at the new narrow gauge line and note its proximity to the Cedar Creek coal fields, now called Newcastle. Records are unavailable to prove it, however, it is highly probable that finances for the completion of the line to Renton came from the coal company backers. For on June 11, 1877 a contract was signed with the Seattle & Walla Walla for the construction of a branch from Renton to the Newcastle tipple, some six and one-half miles, by October 20, 1877. The agreement called for the hauling of Seattle Coal Co.'s product for twenty years and for all locomotives to be turned over to the new railroad. Work was begun immediately on the new line.

When completed the new Seattle & Walla Walla branch replaced the entire transportation system of Seattle Coal & Transportation Company. The line traversed rugged country and required eighteen trestles from

three feet to 121 feet in height and from 40 to 980 feet long. The first coal train left Newcastle on February 5, 1878 for Seattle and the branch was to be used continually until its abandonment in 1934.

The last coal to travel the rail and water route was on January 29, 1878 after which the wharves were closed and the narrow gauge line was dismantled. The old wooden coal cars were sold for firewood with only the iron salvaged for use in building mine dump cars. The large Steamer Linda C. Gray was wrecked on the beach of Lake Washington and only the boiler and engine salvaged, while the Steamer Addie was sold, dismantled and moved to tidewater. As for the two remaining locomotives, they were trucked by horse and wagon to the new roundhouse one and one-quarter miles away.

After this period the railroad operations of the Seattle Coal & Transportation Company were conducted by the Seattle & Walla Walla railroad and became theirs. Upon the sale of the Seattle road to Henry Villard's Oregon Improvement Company in October 1880 the following agreement was signed between Henry C. Villard and George C. Bode, President of the coal company: All coal will be loaded free on board for $3.00 a ton for coarse and $1.75 a ton for nut. With the Railroad Mr. Bode entered into the following pact:

The Seattle and Walla Walla Railroad would:

(1) Carry the coal until October 15, 1897.
(2) Provide wharf and maintain same.
(3) Provide a coal storage yard.
(4) Furnish scales in Seattle and at bunkers.
(5) Give passes to all coal company officers.

The Seattle Coal & Transportation Company would:

(1) Furnish the railroad with coal at cost.
(2) Pay 50c a ton freight.
(3) Load all coal cars.
(4) Provide scales at the mine.
(5) Pay for freight at 2/3 of usual price.
(6) Pay freight bill on 15th of month.

On November 1, 1880 the Seattle & Walla Walla Railroad became the Columbia & Puget Sound Railroad which, along with the operations and activities of the Seattle Coal & Transportation Company, was controlled by the Oregon Improvement Corporation. There were 30,000 shares of coal company stock and George C. Bode and Frank Blair furnished 10,954 shares (Bode also tossed in an additional 2,047 shares) to complete the transaction. Affected by the sale were some ten ocean vessels, owned by Blair and Bode, which carried the coal to California.

The only other locomotive that the coal company had was a small mine locomotive named "Seattle". It was a squatty 0-4-0T, of 2 foot 6 inch gauge, which arrived in September of 1877 but sat on Yesler's wharf and did not go to work till the spring of 1878.

So the Seattle Coal & Transportation Company, built and operated for the sole purpose of moving coal from mine to tidewater, achieved its purpose. As a pioneer in the field of railroading in Washington Territory it shared a number of important firsts. It had built the first narrow gauge locomotive on the Pacific Coast, it operated the first narrow gauge roailroad in the territory, it ran the first excursion train in the territory, it operated the first coal burning locomotive in the territory and it operated the first railroad in Puget Sound area.

The little line failed to survive the passing of time, but it will live forever on in the records of as the forerunner and illustrious pioneer of Puget Sound railroading.

ROSTER

LOCOMOTIVES:

— — —	0-4-0	Hinckley & Co. of San Francisco (Fulton Iron Works), Sept. 1871, 6x12" 7 tons. Sold 1877 to Seattle & Walla Walla RR Sold May 1883 to Ordway & Weidler (Oregon loggers) Sold Oct 1883 to Mosquito & Coal Creek RR Sold 1923 to Long-Bell Corp Scrapped early 1940's (nicknamed "Ant")
"George C. Bode"	0-6-0T	Baldwin #3603, May 1874, 9x12", 30", 10 ton. Sold 1878 to Seattle & Walla Walla RR Destroyed in Seattle fire June 1889 (Nicknamed "Bode" or "Bodie")
"Georginia"	0-6-0T	Baldwin #3713, April 1875, 9x12", 30", 10 ton. Sold 1878 to Seattle & Walla Walla RR Sold 1898 to White Pass & Yukon (?)
*"Seattle"	0-4-0T	Baldwin #4108, July 1877, 8x12", 30", 7 ton. Nothing further known

*Gauge of 2 foot 6 inches, for mine use.

STEAMERS:

Used on Lake Washington—

CLARA—(data ?)
CHEHALIS—(data ?)
ADDIE—Blt 1874 for Renton Coal Co by Howard Shipyards of Seattle. Sold to S. C. & T. Co. 1875. Sold 1878. 110 feet long.

Used on Lake Union—

PHANTOM—(data ?)
LINDA C GRAY—Blt 1874 by Howard Shipyards of Seattle. 125 feet long. Scrapped 1878.

BARGES:

Used on Lake Washington—

#1—80 feet by 120 feet
LADY WASHINGTON—140 feet by 30 feet. Blt 1875. Could hold 60 cars

Used on Lake Union—

#2—80 feet by 120 feet
#3—100 feet by 20 feet

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Puget Sound Dispatch
San Francisco Mining & Scientific Press
Seattle Intelligencer
Washington Standard

Books:

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Prosch, Thomas, Chronological History of Seattle

Miscellaneous:

Record of Sale of S. C. & T. Co. and S. W. W. RR&T. Co. to Oregon Improvement Corp.

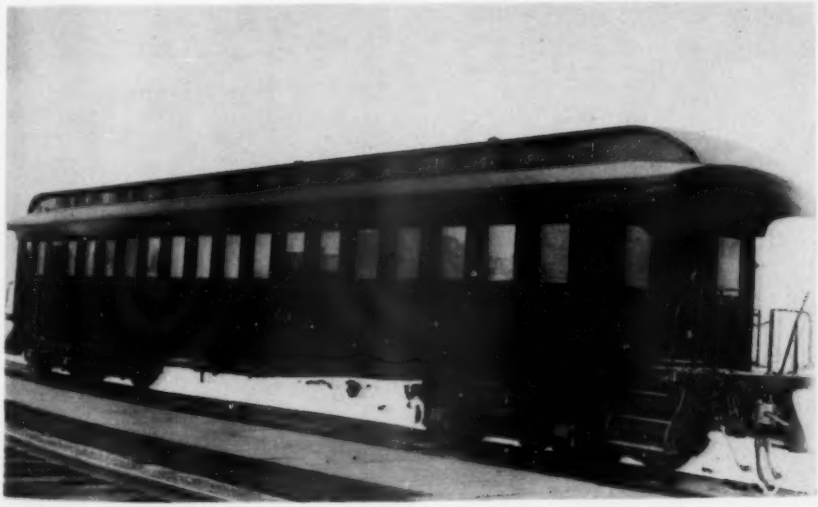
Individuals (assistance acknowledged)

Gerald Best
Charles E. Fisher
Gilbert Kneiss
John Labbe
David Lloyd Stearns

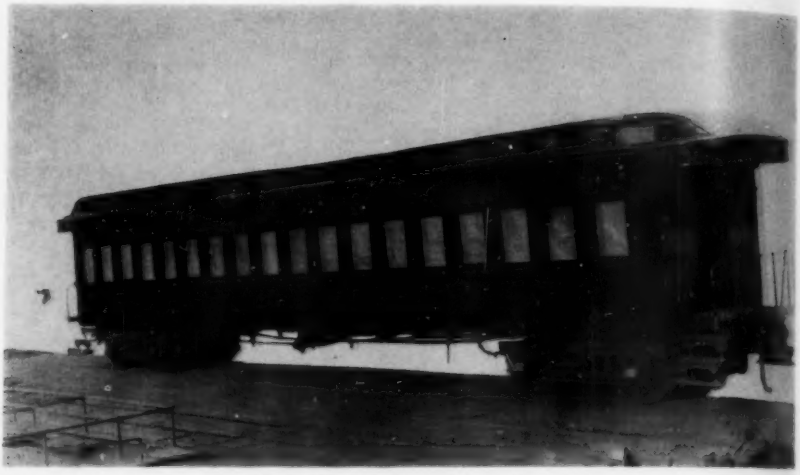
Christmas Cards

Our members will be glad to learn that our artist-member, Betty Tone, 55 Vandam St., New York (13), N. Y. has brought out two cards for 1960. One is a 2-4-0 type locomotive and coach on the Long Island R. R., the other is Virginia & Truckee No. 11 and coach. Both have Christmas decorations and backgrounds and you won't be disappointed with them. The price is 25 for $4.00 and orders should be addressed as above.

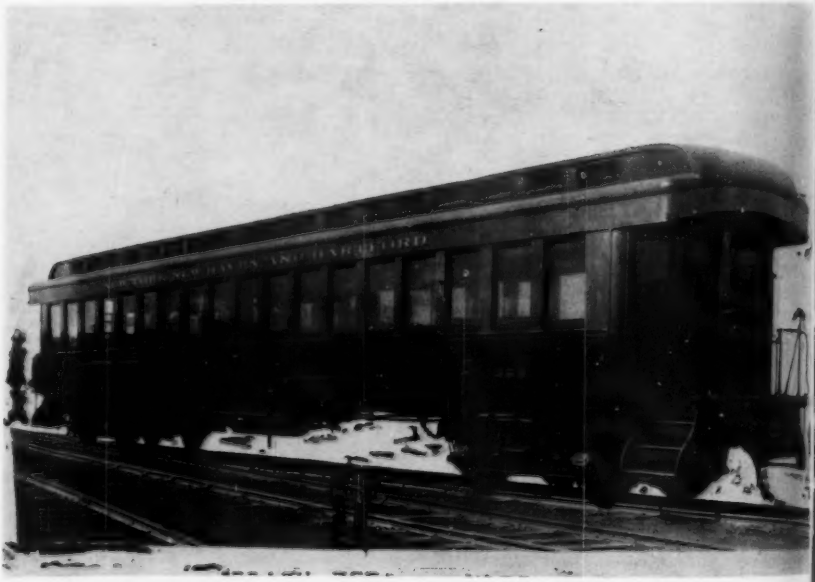
New Haven Coach #144—Osgood Bradley, 1886.



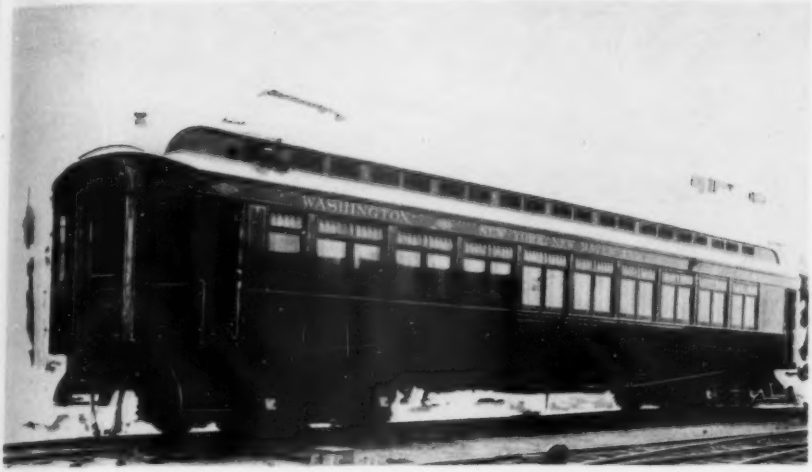
New Haven Coach #168—New Haven Shops, 1875.



New Haven Coach #193—New Haven Shops, 1882.

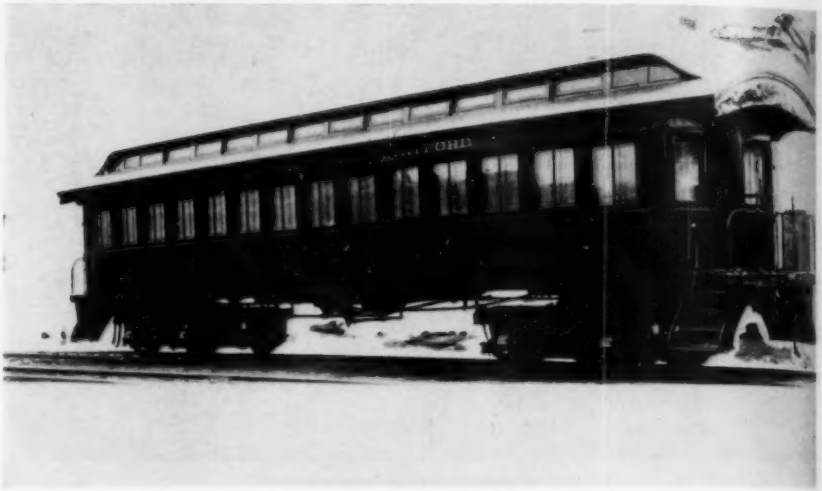


New Haven Coach #365—Osgood Bradley, 1891. One of the two coaches first sheathed with copper.

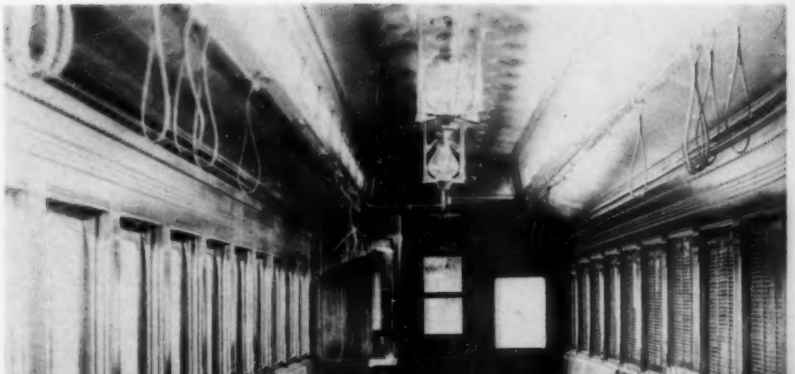


New Haven Coach #518—Pullman, 1892.
Used either on the "Federal" or Colonial" Expresses.

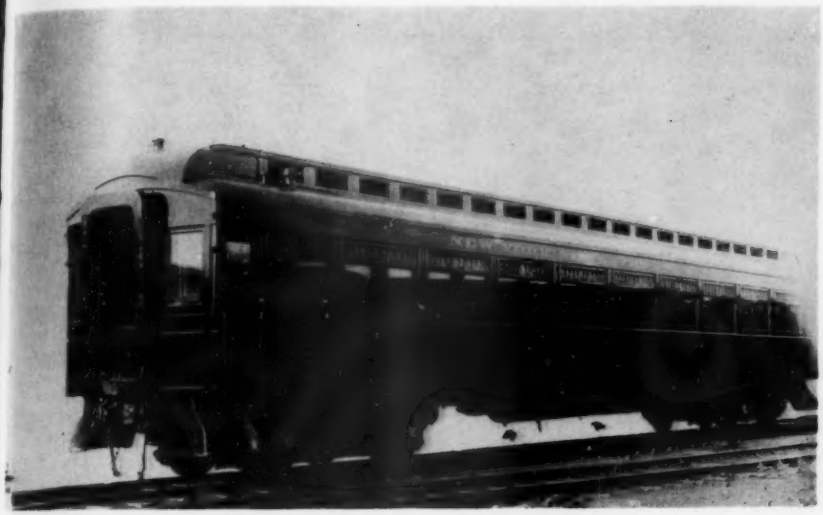
New Haven Coach #518—Interior View.



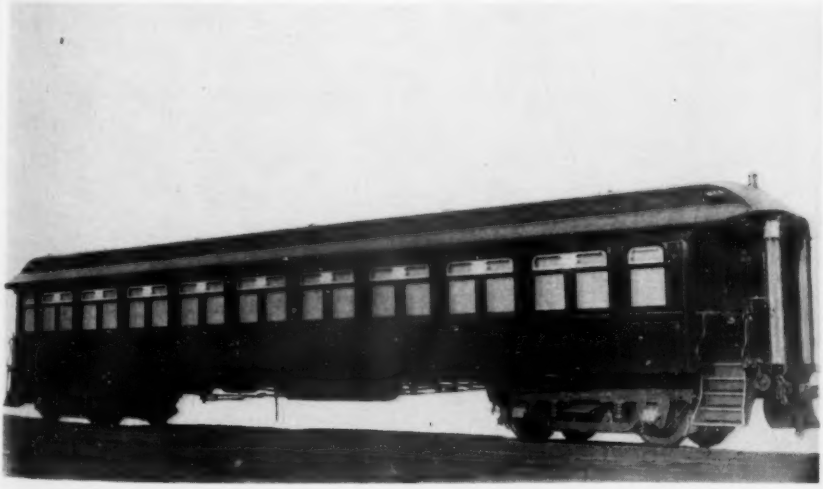
New Haven Coach #784—Bowers, 1881.



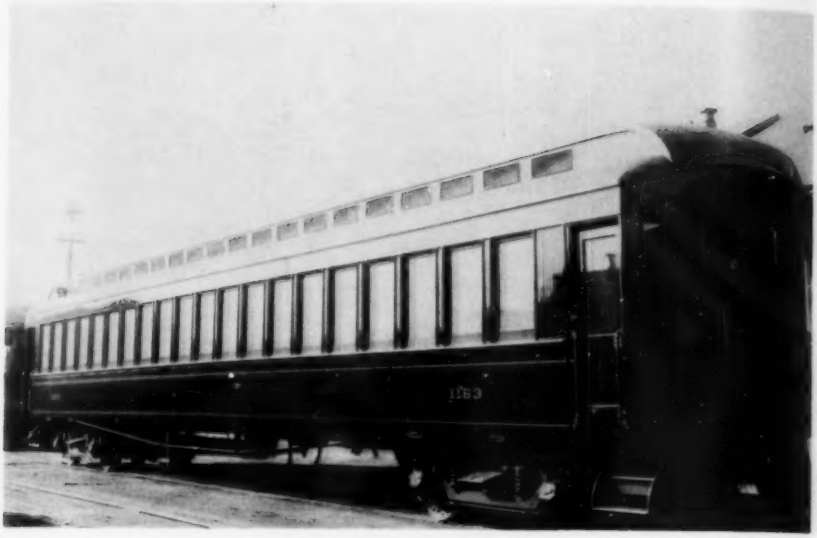
New Haven Coach #784—Interior View.
Note odd arrangement of seats, wooden blinds and straps. Coach was probably used in suburban service.



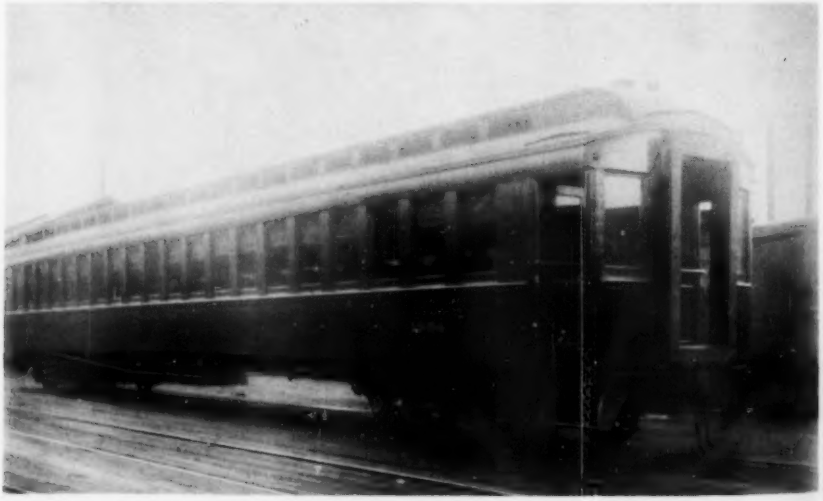
New Haven Coach #794—Bowers & Durrel Co.—1881. Used in Boston-Washington service. Rebuilt 9/1915 and used as a pay car.



New Haven Coach #979—Pullman, 1893. Used on the "Fall River Line Boat Train."



New Haven Coach #1163—New Haven Shops, 1901.



New Haven Coach #1524—Wason, 1905. One of the vestibuled copper sheathed coaches.

The New Haven's Wooden Coaches

By Charles E. Fisher

The author of this article fully realizes that the vast majority of our members are chiefly interested in the "Iron Horse" and that the rolling stock comes off a very bad second. The average small boy around the turn of the century was drawn to a locomotive like a magnet but, like all the others, he had to ride in the coaches for a locomotive cab was "off limits." There was as much individuality in most of these coaches as there was in the locomotives that drew them—individuality in builder, interior finish, seats, exterior finish and moulding of the roof. Most of us passed up this interest for that of the locomotive.

During the vacation periods of school, I was frequently favored by accompanying my father on his trips to Boston, subsequent to his retirement. As the train approached the Back Bay Station in Boston, which was underground, it was always interesting to see if the brakeman would have the Pintsch gas lamps lit in time. A quick turn of the key, a lighted taper on the end of a stick, a press on the catch of the glass globe would do the trick but it was more interesting when they stood on the supports at each end of the seats under the lamp and repeated the performance without the stick but by a lighted match. Just about that time the train hit the curve and the brakeman sometimes lost his balance.

Altho' our trips to Boston were usually on one of the express trains, our return trip home was something that was discussed during a brief lunch. In the summer, if the weather was fine, we made at least one trip on the boat to Pemberton, took the electrified portion down to Nantasket Jct. and returned home via South Braintree and Randolph. Other routes were sometimes via Plymouth or Middleboro, sometimes we stopped by for a brief visit with the relatives in Dedham and returned home via Walpole. So long as the coupons lasted in the mileage book, the combinations were endless.

Once during the summer, we made the trip to Provincetown. This called for an early departure, just about time to have dinner at Provincetown and to look around the place and altho' the train made every stop between Buzzards Bay and Provincetown, the local color at the many stations always made the trip of interest. Another place to visit was Providence, R. I., to see the Shore Line trains as they stopped at that station and then a return on the electrified line to Fall River and then home. In this way the writer saw much of the New Haven trackage in that portion of the state.

At the turn of this century, Taunton, Massachusetts, my birthplace, was a city of considerable manufacturing and with some cotton mills. It was a division point on the New Haven and it was a junction of considerable importance. South-eastern Massachusetts was well served by the Old Colony R. R. and the service was improved under New Haven management until 1913 when the decline commenced.

Suppose we turn to the summer timetable dated June 2, 1912 and make a few observations. As might be expected, most of the passenger trains ran between Boston and Taunton, a distance of 36 miles. Nearly

all were routed via Mansfield where they joined the Shore Line and several ran non-stop between Taunton and Back Bay, a distance of 35 miles in some fifty odd minutes. At Taunton, the section from New Bedford was the first to arrive and, as soon as the baggage and passengers had been unloaded, "Charlie" Sampson with his 762 would pull the cars below the crossover and, as soon as the Newport-Fall River section arrived, they would be attached to the rear of that train. If you were smart, you boarded the New Bedford section as soon as the passengers for Taunton had unloaded. There was not only more seat room but you got the extra ride of a few hundred feet and back and, if the train was an important one, "Charlie" and the 762 helped them out of the station to either the yard office or the Dana Street crossing. You had a chance, if you sat in the last seat of the rear coach, to see the brakeman flip over the Miller hook, feel the final surge of the switcher with a "now you are on your own" and you could watch him gradually drift back to the task of making up the passenger trains at the depot. The return service was the same—the trains from Boston were generally split at Taunton for Fall River-Newport and New Bedford.

Some of these Boston-Taunton trains ran via Stoughton, joining the Shore Line at Canton Jct. and, in later years, after World War I, the majority of the trains ran that way. You could also go to Boston via Randolph and South Braintree, the line joining the Old Colony at Mayflower Park. All of these trains were locals and thus served all of these little cities and towns.

If one wanted to go to New York City, other than using the Fall River Line, there was good service between Taunton and Providence. These trains were timed to arrive and depart so as to allow ample time for your Shore Line connection. Some of these trains originated and terminated at Taunton, others ran through from Providence to Middleboro where connections were made with points on Cape Cod and some continued to Plymouth—landing place of the Pilgrims.

To the north, we had through trains between Taunton-Mansfield-Framingham and Lowell and between Taunton-Mansfield and Marlboro with connecting service to Fitchburg. Take it all in all, Taunton was a busy place between 6 08 A. M. when the first train arrived from New Bedford and 12 47 A. M. when the last train departed for Fall River. During this interval, eighty-four trains made their arrival or departure on week days and at least two-thirds of them were in the Taunton-Boston service via the three different routes and, nearly all of them came under the observation of this writer.

The New Haven R. R. leased the Old Colony R. R. on March 1, 1893. The locomotives were numbered in a group by adding 600 to the Old Colony number and the cars were relettered and renumbered into the New Haven series by continuing with the next highest number in the group assigned to that particular type of car—coach, "combine" or baggage car. In general, after the lease, the Old Colony equipment was used on that portion of the New Haven but, with the Shore Line assuming its rightful importance, with more trains and new equipment assigned this service, the former equipment was spread out over other portions of the road and some of it came down to Taunton.

Until after World War I, the majority of our trains were made up of open platform coaches. This is the correct terminology and I deplore the use of the phrase "open vestibuled coaches." A vestibule can be opened but, by its definition it can't be open! As the result of the Fall River Line service, we folks down in Taunton were favored with some of the narrow vestibuled coaches. These cars with their red upholstery, Pintsch gas lamps, large mirrors at each end on the wash room partition were very comfortable and elegant in their day. The "Boat Train" carried this equipment both ways as did the first "Boat Train" for Boston in the morning and the Newport section of the second "Boat Train" in the evening. I recall that some of us boys tried to figure out the roundtrip movement of these cars by arising early in the A. M. and receiving permission to stay up late at night in order to take the car numbers. We could have asked one of the train despatchers but preferred to get it the "hard way." Even so, our observations did not furnish the answer but a friendly clerk in the "super's" office helped us out.

Another train that was equipped with these narrow vestibuled coaches was the "Dandy." This three car train originated at Newport, R. I. and, in the summer time a parlor car was added. At Taunton, three more vestibuled coaches were added from New Bedford and the seven car train proceeded to Boston, at one time running via Stoughton. About 1911, the New Bedford people wanted a parlor car added to their section and the eight car train, two of them parlor cars, was too much for the former No. 358, later No. 1685 to handle. She struggled manfully that summer, was usually late and, if the coal was bad, was much later. The next summer the big No. 1410, formerly NY&NE No. 2, was sent over and easily handled the train. Curiously enough, the train was subsequently divided. The New Bedford section, with the 1410 became the "Whaler" and ran express to Boston and was followed about fifteen minutes later by the "Dandy" that also ran express to Boston. So far as I know however, the No. 1685 never went back to the "Dandy."

The most interesting passenger cars the New Haven owned were those sheathed with copper. The idea originated with Mr. Appleyard who was the Master Car Builder of the road. Both sides and both ends were sheathed with copper and, I'm not sure but in later years it included the letter board. At the turn of the century, cars 365 and 368 were tried in the nature of an experiment and, in the years that followed, Watson and the other builders built some eight or nine hundred of these cars and some were not scrapped until World War II. There were coaches, "combines" (passenger and baggage) both open platform and wide vestibuled. The seats had red upholstery and were high enough to support the head, the cars were finished in light green, the Welsbach gas mantles were a big improvement over the Pintsch gas lamps—later some of these cars had electric lights and the trucks were spaced so as to make a very comfortable riding car.

What were the advantages in a copper sheathed car? The original application was two or three coats of dark green paint to the copper surface and they were covered by about as many coats of varnish. Metal letters were used on the letterboard and metal numbers applied to the sides of the car. The name of the road was spelled out in full, as was the custom at the time. There was no gold striping—that was commencing

to go from the cars other than those used on the Shore Line. When one of these cars was shopped, the outside surface was cleaned and probably another coat of varnish was applied. Sooner or later, after several shoppings, the paint and varnish had to be removed but first, any cracks in the copper were welded so that the strong paint remover would not get under the copper sheathing, the remover was then applied, the copper surface cleaned and primed as soon as possible so as to preclude oxidation and then the coats of dark green paint and varnish were applied to finish the surface. The metal letters and numbers were restored to their proper places and that covered about all that was ever done to the exteriors of these cars. As one man remarked at one time—the surfaces of these cars (exterior) cost less to maintain and they saved more money than any wooden coach the New Haven ever had. An illustration of coach No. 365 and No. 1524 appears with this article. The Hudson & Manhattan Ry. of New York had some coaches the bodies of which were sheathed with copper but not the superstructure and I don't know of any other road that used them as extensively as did the New Haven.

Some of the cars that are illustrated deserve a word of mention. Coach No. 193 was one of several that were built in the New Haven Shops in 1882. We never had many of these on our trains but, during the summer months when the road ran excursions from Newport, Fall River and New Bedford to Boston, those trains were usually made up of these cars. A couple of days before the Sunday of the excursion, the siding not far from our home would have a line of these cars. I remember them well with the colored glass above the windows and we boys would mount the platforms and peer inside. They had gas lamps, red upholstery on the low backed seats and, from all I ever heard, were a good riding coach. Saturday night or early Sunday A. M., they would be moved to the point where the excursion was to start and later in the morning, they would come through, with their passengers, for Boston.

Coach No. 518 was built by the Pullman Co. in 1892 for service on either the "Colonial" or "Federal Express" between Boston and Washington. Unlike the majority of the New Haven Shore Line coaches, this car contained a smoking room at one end. The car was lighted by gas, the seats were low backed and probably finished in red. Coach No. 794 was also built for the "Federal Express" by Bowers & Durrell Co. in 1881 and, in 1915 it was rebuilt into a pay car. This car also contained a smoking room at one end.

Coach No. 979 was built by the Pullman Co. in 1893 for the Old Colony R. R. It was this type of a narrow vestibuled coach, with the etching in the upper windows that distinguished them from other narrow vestibuled coaches like No. 515, that ran on the "Boat Train" and some of the other trains that came to Taunton. The No. 1163 was built in the New Haven Shops in 1901 and was probably assigned to Shore Line service when new.

These notes, together with the illustrations, should give you an idea of the wooden coaches on the New Haven R. R. Other types of passenger equipment have been saved for future articles. All of the illustrations are from the New Haven or Starbuck collections of this Society and, it is the hope of this author that you found something of interest in these notes and illustrations.

Locomotive Builders Not Mentioned in Bulletin No. 58, May 1942

By Walter F. Becker

THOMAS W. GODWIN & CO.; NORFOLK, VA.

Files of the old *Railroad Gazette* mention one or two orders filled by this firm. The name is spelled "Goodwin" on one occasion, but "Godwin" appears to be the correct one.

The Jan. 26, 1877 issue states that they recently completed a locomotive with 8x16" cylinders and 30" drivers for a lumber road in Norfolk county (Virginia?).

Five years later, April 7, 1882, the firm was reported to be building seven engines for the *Des Moines, Osceola & Northern* road. (This was a misprint for *Southern*. The road was 3 ft. gage, later renamed *Des Moines & Kansas City Ry.*, now part of the *CB&Q*. While still narrow gage it had eight locomotives on June 30, 1891. The R&LHS bulletin covering CB&Q locomotives, Part II, page 67, mentions the DM&KC, but has no information on its motive power).

It appears that the Godwin works was still in business in 1884, for the issue of April 4 announced the appointment of an agent to represent it in New York City.

GLOBE IRON WORKS, CLEVELAND, OHIO

While it is debatable whether this firm can be considered a builder of locomotives, it is on record that they did manufacture light motive power. Railroad Gazette, May 8 and July 31, 1875, reported that these works were building and had recently completed at least one engine or dummy for the *Lake View & Collamer* road. (This line, consisting of 10.7 miles of track between Cleveland and Euclid, Ohio, was purchased in 1882 by the NYC&StL).

RIX AND FIRTH; SAN FRANCISCO, CALIF.

It was reported in Railroad Gazette, Oct. 12, 1887, that this firm was building one fifteen-ton locomotive for the *Portland & Vancouver Ry.*, and another for the Navarro Mill. Altogether they had built ten locomotives since the preceding November.

(In R&LHS bulletin No. 94, Locomotives of the SP Co., page 127, it is stated that this firm's second locomotive was built in 1887 for the San Bernardino & Redlands, a 3 ft. gage line).

PITTSBURGH AND McKEESPORT CAR & LOCOMOTIVE WORKS; McKeesport, Penn.

This firm was a recognized builder of railway cars, but they built a number of standard gauge and narrow gauge locomotives in the 1874-1877 period. Their first output seems to have been a 16 ton engine for

Messrs. Joseph Keeling & Co., described as coal merchants of the South Side (Pittsburgh?). This was followed by a 22 ton locomotive for the *Buffalo Valley* line (Railroad Gazette, July 25, 1874).

(The latter road was opened in January 1876, and reorganized in 1879 as the *Berlin RR.* When it was operated by the B&O in 1891 the road extended from Berlin to Garrett, Penn., 8 miles, and had one locomotive).

On Sept. 19, 1874 the plant was reported to be very busy and had recently turned out some light engines for a Florida road. A little later, Dec. 26, it was reported to be building "a second engine for the *St. John's Ry.* in Florida." Apparently it was not delivered until a year later.

The periodical for Jan. 14, 1876, stated that these works "recently shipped a second engine for the *ST. JOHN'S RAILROAD* in Florida." (In R&LHS bulletin No. 86, The Story of the Florida Railroads, by George W. Pattengill, Jr., this line was stated to have been built in 1859-60 from St. Augustine to Tocoi landing on the St. Johns River, about fifteen miles. In 1876 "the line was rehabilitated with steel rails, supplanting those of wood and strap iron, and steam locomotives displacing temperamental mule power." The roster lists but two engines on the *St. John's Ry.*, no. 4, 4-4-0, Baldwin, 1886; and no. 5, 4-4-0, Baldwin, 1887. Presumably the two engines from the Pitt. and McK. C. and L. Wks. were numbered *St. John's Ry.* 1, 2, or 3, but did not survive to enter the FEC roster in 1895).

On July 13, 1877, it was reported that steam motors or dummies were under construction for a street railway between Newport, Ky., and Dayton, Ky., about three miles in length.

The plant was destroyed by fire on Oct. 2, 1877, together with two shifting engines, nearly completed for an unknown road. (Railroad Gazette, Oct. 12 and Oct. 19). The periodical on Feb. 8, 1878 reported the decision of the stockholders not to rebuild the plant.

WEBSTER & MARKS; CHATTANOOGA, TENN.

It was reported in Railroad Gazette, June 27, 1874, that this firm had recently completed in their shops a passenger engine of 3 ft. gauge for the *Louisville, Harrod's Creek & Westport* road in Kentucky, named "Glenview (?)," see Bulletin No. 78, page 6.

(The line was built from Louisville to Prospect, 11 miles, and was purchased in 1879 by the L&N).

GEORGE W. SNYDER CO.; Pottsville, Penn.

Three narrow gauge locomotives were built for the *Brighthope RR* in Virginia, according to Railroad Gazette, Dec. 16, 1881.

(This line was unique in that it changed from standard to 3 ft. gauge in that year, its track extending from Clover Hill eastward 18 miles to Osborne's Landing. It was chiefly engaged in the coal traffic. By 1891 it had been renamed the *Farmville & Powhatan RR*, an 88 mile line, with termini at Farmville and Bermuda Hundred, and an 8 mile branch; it had seven locomotives, all narrow gauge).

CHAPLIN & LANTZ; Allegheny, Penn.

"The new works of Chaplin & Lantz in Allegheny, Penna., recently turned out their first engine, a passenger engine for the *Lawrenceville & Evergreen* narrow gauge road. The firm is composed of Messrs. Melchior B. Chaplin, of Pittsburgh, and John A. Lantz, formerly of the National Locomotive Works at Connellsville, and of the McKeesport Car and Locomotive Works. They will build light engines entirely."

—Railroad Gazette, June 4, 1880.

(The line ran from Bennett to Evergreen, Penn., 2.61 miles. It was renamed *Evergreen RR* the same year. These termini are now in the Pittsburgh suburban area. In 1887 the Pitt. & Wn. Ry. purchased the road and operated it under the title of *Pittsburgh & Northern Ry.*)

CRANE IRON CO.; Catasauqua, Penn.

"The Crane Iron Co., being unable to secure a yard engine, which was much needed, in time, is building a six-wheeled tank engine in its own machine shop at Catasauqua, Penn., for use in its own yards."

—Railroad Gazette, December 30, 1881.

NORTH PACIFIC IRON WORKS; Seattle, Wash.

These works had the distinction of building the first locomotive to be constructed in Washington Territory. It was a small tank engine with 6x10 inch cylinders intended for use on the logging road of Blackman Brothers, near Muckilteo, in Snohomish County (Railroad Gazette, Aug. 26, 1881).

MOYNIHAN & AITKEN; San Francisco, Calif.

This firm built a locomotive for a narrow gauge road belonging to a coal company at Coos Bay, Oregon. A garbled description of it appeared in a San Francisco newspaper, which was reprinted in Railroad Gazette, Nov. 28, 1874. Apparently it had 7.5x14 inch cylinders and four drive wheels, 36 inches in diameter. Its weight, with "water-end tender," was stated to be about ten tons.

GEORGE E. FIFIELD; South Newmarket, N. H.

"The *Boston Transcript* thus speaks of an unusual class of locomotive building:

'George E. Fifield, of South Newmarket, N. H., has been building for a few years past a novel class of locomotives for the wooden-track railways in the lumber regions of Georgia. They are only six tons in weight, and have very large cylinders for so light machines. The capacity for carrying water and fuel is very great, the whole forming a very unique and serviceable machine, one of them being able to do the work of thirty mules easily. The rapid denudation of the timber lands along the rivers and lines of railroad all through the South is driving the lumbermen deeper into the forests to supply the demand for a material

almost indispensable for heavy bridges, cars and floors throughout the country. No yellow pine tree ever grows where one is cut, a soft, sappy and worthless scrub pine of another kind taking its place.' "

—Railroad Gazette, June 7, 1873.

BARNUM, RICHARDSON; Chicago, Ill.

"A strange nondescript has just been received for repairs at the Grant Locomotive Works, and crowds of workmen are attracted to look at it. There is little likeness about it to a locomotive engine such as may be seen at the present day, still it purports to be something of the sort.

"It was what was once known as the "grasshopper" or "wheelbarrow" engine, and it is said that this class was once used for switching purposes on the old Paterson & Hudson River road. The front truck is placed on four wheels and there are two drivers directly under the cab. The build is of the rudest description, the frame timbers very heavy, looking for all the world as if merely hewn out. It must be seen to be appreciated: as for description, the nearest we can come to it is to liken it to a steam roller, which it resembles as much as anything else. The engine came here from Oil City, is named "LOGAN", and was built by *Barnum, Richardson & Co.*, Chicago, in 1866."

—Paterson, (N. J.) Press, reprinted in Railroad Gazetts, June 4, 1880.

"The *Barnum & Richardson Mfg. Co.* in Chicago are about to move to the new shops on the South Branch, which were built seven years ago, but have not been used up to the present time. The change is made necessary by the press of business."

—Railroad Gazette, March 12, 1880.

PRESCOTT, SCOTT & CO.; San Francisco, Cal.

This plant built a locomotive for the *Antioch & Grangeville* single-rail road. (Railroad Gazette, Jan. 14, 1881).

A description of this line appeared in that publication under date of Oct. 15, 1880: "The *Antioch & Grangeville* will soon begin work on a line which is to extend from a point near Antioch, Calif., through the San Joaquin Valley to Grangeville, 165 miles. It is to be built on the James prismoidal, or one-rail system, which, it is claimed, will not cost over $1,200 per mile. A section of 50 miles, from Moore's Landing, on the San Joaquin River, to Hill's Ferry, will be built this year, if the company succeeds in carrying out its plans."

MARINETTE IRON WORKS; West Duluth, Minn.

"The Marinette Iron Works will ship a small locomotive to Tower (Minnesota) today, which will be used on the dummy line running out to Soudan."

—Duluth (Minn.) Daily News, Sept. 29, 1892.

(MEMPHIS, EL PASO & PACIFIC RR)

"The collector of customs in New Orleans advertises that he will sell at auction January 10th ten locomotives of 5 ft. 6 in. gauge built by Andrew Roechlin, of Mulhouse, France, they having remained in warehouse unclaimed more than a year. These must be a portion of the purchase made in France some time ago for the Southern Pacific Railroad, known as 'Fremont's road.' "

—Railroad Gazette, Dec. 30, 1871.

(Locomotives similar to the above were described by Fred Jukes in Bulletin No. 92, with additional material by F. Achard in No. 93. Nowhere is the gauge of the locomotives stated.

(Mr. Jukes is quite positive that M.E.P.&P. nos. 1-10 never arrived in America, and states the eventual disposition of seven of these.

(This raises the question of whether orders were placed for two groups of ten each, one group of ten being delivered in New Orleans, and the other series remaining in Europe.

(Succeeding issues of the Railroad Gazette do not appear to present any more information on the above engines. They may have been repossessed by the builders, or purchased by some road of the same gauge).

An Old Inspection Engine On the Milwaukee & St. Paul Railway

By Walter F. Becker

The "MESSENGER"

On September 29, 1869 the M&STP Ry. ran an excursion from St. Paul to Mendota, Minnesota, six miles, to celebrate the completion of the Mississippi River railroad bridge and a new entrance into St. Paul.

On board the train were St. Paul city officials, railway officials, and many prominent citizens. The locomotive and cars were of special interest and were described in some detail by two St. Paul newspapers at the time.

The *Daily Press* stated that the little engine MESSENGER had been the first engine on the Boston & Maine Railroad. It had been working westward and in the winter before had been rebuilt at the shops of the M&STP. A business car was attached to it, making it an engine and business car combined, "a beautiful and elegant directors' and managers' home on wheels."

The *Daily Dispatch* goes into somewhat greater details:

> "The locomotive which drew the excursion train bears the name of 'MESSENGER.' It is an engine and business car combined, the rear part, 'in the place where the tender ought to be,' being elegantly fitted up into a sleeping apartment and sitting room. Supt. Shepherd (correct spelling is Shepard) of the M&STP road tendered it for the occasion and it made a comfortable addition to the train. The MESSENGER was the first engine on the Boston & Maine Railroad, being then called the 'COCHECO.' It has been gradually working its way west, building railroads, until it fell into the hands of the M&STP, and was rebuilt last winter at their shops. It now makes an elegant appearance with its business car attachment."

The *Minneapolis Tribune* November 11, 1871, reported that M&STP officials toured the Hastings & Dakota line from Farmington to Carver in the Superintendent's car "MESSENGER."

A month later, December 10, 1871, the *Minneapolis Tribune*, stated that M&STP Supt. Prior went with a party in his elegant car "MESSENGER" to inspect the new railroad bridge across the Mississippi River at Hastings, Minnesota. Three locomotives were run across the bridge to test it—the MESSENGER, ALEX. MITCHELL, and the HORACE GULPIN.

It does not appear that the MESSENGER was ever given a road number. Built primarily for the convenience of railway officials, it was not suitable for use as a revenue train, in the manner of the SHAKOPEE, a similar but undoubtedly larger combination locomotive and car on the neighboring Minnesota Valley road.

The locomotive from which it descended, the COCHECO, was credited with being the Boston & Maine Railroad's first engine. This was not quite true, although it might have been among that road's first half-dozen.

In Bulletin No. 26, published by the Railway & Locomotive Historical Society, are to be found several references to this interesting little engine.

In 1849 the Boston & Maine set a valuation on each of their twenty three locomotives. The COCHECO and one other had the very low valuation of $2,000 each, the remainder being appraised at $2,700 to $8,000 each.

In the B&M annual report for 1856 the COCHECO is listed as weighing 12 tons, with 12 x 16″ cylinders and 60″ drive wheels. It was not listed in the railroad's annual reports after 1863.

Herbert Yeaton, historian of Boston & Maine RR locomotives, believed that it was built in 1845 by The Hinkley & Drury Works, and sold in 1863 to the United States Military Railroads.

The closing years of this "iron colt" are lost to us. In the twenty six years of its life that are known to us we can trace a romantic triple or quadruple purpose—pulling passenger and freight trains across the Cocheco River in New Hampshire; possible war work in the Southern States; the drudgery of railroad building in the Middle West; culminating in a life of luxury in that it need transport no more than one or two dignitaries on inspection trips over the line.

Sources: All of which are in the Minn. Hist. Soc.

St. Paul Daily Dispatch—Sept. 29, 1869.
St. Paul Daily Press—Sept. 30, 1869.
St. Paul Daily Pioneer—Sept. 30, 1869.
Minneapolis Tribune—Nov. 11; Dec. 10, 1871.
Railway & Loco. Hist. Soc. Bulletin No. 26.

Early Locomotives in the South

ADDITIONAL MATERIAL RELATING TO BULLETIN NO. 101

Since publication of Bulletin No. 101, we have received additional data relative to the locomotives and history of the railroads of the South, particularly those in North Carolina. The information supplied is from authentic sources such as the works of prominent historians, State files and records, and from railroad Annual Reports, to *all* of which reports the authors of Bulletin No. 101 may not have had access.

New light is shed upon the engines of the Raleigh & Gaston and the Petersburg Railroads, the history of whose locomotives has long been the subject of controversy, even from the earliest reports by the U. S. Treasury Department and the accounts of A. Von Gerstner. In presenting this supplementary material it has been, in some instances, carried beyond the year 1840, which was the cut-off date of the original article.

We consider the records and history of these earliest days of the steam locomotive to be of greatest importance, and any new, authentic matter that will help to complete the records of that era is most eagerly sought, so we are pleased to present this work by one who has spent many years in research of the railroads of the South.

* * * * *

ALEXANDRIA & CHENEYVILLE R. R. Bulletin 101. Page 11.

This railroad was incorporated March 16, 1833, with exclusive privileges for fifty years to build from any point on Bayou Boeuf, north of Cheneyville, to Red River, in the Parish of Rapides, Domicile, Alexandria. By Act of March 26th, 1833, the State subscribed for 200 shares of stock. An Act approved April 2nd, 1835, changed the name of this company to, and re-incorporated it as the Red River Railroad Co., to build a railroad from Alexandria to Cheneyville, and down the Boeuf.

The road was constructed from Alexandria to Bayou Boeuf, about 16 miles, and was subsequently sold at auction to a Mr. Smith, who continued to operate it until some time during the Civil War, when the rails were taken up and used to cover gunboats. It was never rebuilt, but, on March 6th, 1878, the roadbed and franchises were purchased by the New Orleans Pacific R. R., which now forms part of the Texas & Pacific Railway.

(Sources: G. W. R. Bayley's *History of the Railroads of Louisiana*, 1873.
I. C. C. Valuation of the T. & P. Ry.)

GEORGIA R. R. & BANKING CO. (To 1840) Bulletin 101. Page 34.

Augusta, Ga. to Greensborough, Ga. 83.2 miles.
Athens Branch completed in 1841; operated with horse cars until 1847.

This road was not completed to Marthasville (now Atlanta) until Sept. 1st, 1845. Therefore, there was no railroad between Augusta and Atlanta at the cut-off date (1840) in the Bulletin. Likewise, there was no South Carolina Canal & R. R. or South Carolina R. R. in Augusta until 1853.

Stephen H. Long, U. S. Army Engineer, was detailed to examine the Georgia R. R. as part of a line from Memphis to Charleston. In 1837, he drove a stake into the ground near what is now Five Points in Atlanta. This point was called "Terminus", although a small nearby postoffice was called White Hall. In 1843, Terminus was changed to Marthasville, in honor of Martha Lumpkin, daughter of the Governor of Georgia. When the Georgia Railroad was completed in 1845, it was decided to give the town a name descriptive of its function, and it was named Atlanta, and was re-incorporated as a city on December 29th, 1847. The name was chosen, tradition says, by J. Edgar Thomson, the road's Chief Engineer.

Baldwin records indicate that engine bearing shop number 111 was built for the Georgia R. R., and was named "J. Edgar Thomson." No engine bearing this name appears in any of the road's Annual Reports, leaving both its identity and ultimate disposition a matter for further research, with the reasonable possibility that the engine was renamed.

LONG ISLAND RAILROAD. Bulletin 101. Page 39.

Regarding the locomotive "Post Boy," this engine is first reported by the South Western R. R. in its Annual Report of July 31st, 1853. During part of its time on this road, it was used on the Hawkinsville Branch of the Macon & Brunswick R. R. The report of July 31st, 1869, says it has been sold to John McDonough, of Savannah, Ga., for $1,200.00. McDonough was not a lumberman, but operated a machine shop in Savannah. He later became Vice-President of the Georgia Car and Manufacturing Co., after which, he was President of the Savannah Locomotive Works and Supply Co.

MISSISSIPPI RAILROADS TO 1840. Mileage constructed.

Mississippi Railroad	25	miles
Woodville & St. Francisville (West Feliciana)	7	miles
Grand Gulf & Port Gibson	7¼	miles
Vicksburg Commercial & R. R. Bank. (Vicksburg & Jackson)	30	miles
Mississippi & Alabama R. R.	0	miles
Lake Washington & Deer Creek	0	miles
Benton & Manchester R. R.	0	miles
Jackson & Brandon R. R.	14	miles
Total	83¼	miles

The gauge of the MONROE R. R. was five feet. The name of its second engine was "Griffin".

MONTGOMERY RAILROAD. Bulletin 101. Page 43.

Montgomery, Ala. to Franklin, Ala., 32.4 miles in 1840.
Completed as above in June, 1840.
Changed to Montgomery & West Point R. R., 1843.
Extended to West Point, April 8th, 1851.
Gauge of track, 4′ 8½″.

The "Abner McGehee" last saw service as a work train engine, with two cars, to transport timber for rebuilding the Osanippa Creek bridge, in 1865. The bridge, destroyed in the war, was completed June 16th, 1865, and the "McGehee" was junked.

NEW ORLEANS & NASHVILLE R. R. Bulletin 101. Page 47.

This was not a Mississippi, but a Louisiana, railroad. It was proposed to pass through Mississippi, but no track was ever laid in that state. Historian Rowland states that there was opposition to the proposed N. O. & N. in Mississippi because it would have competed with roads already under construction. It was incorporated by Act approved January 30th, 1835, to construct a railroad from New Orleans to Nashville, Tenn., with capital stock of $6 million. In November, 1863, one mile of track had been completed, on piling, from about the intersection of Canal and Robertson Streets, extending out toward Metaire Ridge, in New Orleans. After some delay, due to securing additional funds from the State, work was resumed in May, 1838, and track-laying continued until July, 1839, to a point on Lake Pontchartrain, about five miles. By the end of March, 1841, track had been laid to three miles beyond Bayou Labranche, or about 31 miles from New Orleans.

The road was subsequently seized by the State and sold—property, franchises, slaves and engines—by Act 83, March 24, 1844, to Alex Gordon and Germain Musson and their associates, who owned the Mexican Gulf R. R., and who used all the available materials obtained from the N. O. & N. on construction of the Mexican Gulf.

The road on the route referred to in Bulletin No. 101, as between Newton and Canton, Miss., via Jackson, never existed as one railroad. It is 65 miles from Newton to Jackson, and about 28.7 more to Canton, or 93.7 miles. The road from Jackson to Canton was built by the New Orleans, Jackson & Great Northern, and north from New Orleans. There was no other road here. Between Jackson and Newton the railroad has always been the Alabama & Vicksburg and its predecessors, as follows:—

1. *Jackson & Brandon R. R. Bridge Co.* was chartered February 5th, 1836, to build from Jackson to Brandon. On the same date the charter was transferred to the Mississippi & Alabama R. R., which

failed to construct any appreciable amount of road, and its rights were revoked and returned to

2. *Jackson & Brandon R. R. & Bridge Co.*, chartered by Mississippi Acts of February 21st, 1840, and February 5th, 1841, who completed 42 miles of track, from Jackson to Brandon, by 1849. In July, 1852, the Governor of Mississippi transferred the property to the

3. *Southern Railroad Co.*, which was incorporated in Alabama, January 5th, 1846, and in Mississippi on February 23rd, 1846, but failed to organize under these authorizations. Incorporation was revived by Special Act of Mississippi, of March 9th, 1850. In July, 1852, it acquired the Jackson & Brandon R. R. and Bridge Co., and, January 8th, 1857, purchased the Vicksburg & Jackson R. R., formerly the Commercial & Railroad Bank of Vicksburg. By 1858, the Southern had completed the 21 miles between Brandon and Newton, and the remaining 64 miles to Meridian, in 1861. The road became the Vicksburg & Meridian in 1867, and the Alabama & Vicksburg in 1889.

(Sources: I. C. C. Valuation Report of the Alabama & Vicksburg: Dunbar Rowland's "Encyclopedia of Mississippi History": Bayley's "History of Louisiana Railroads".)

PETERSBURG RAILROAD. Bulletin 101. Page 50.

It should be noted here that the railroads of this area, viz., Petersburg, R. & G., Greensville & Roanoke, Wilmington & Raleigh, R. F. & P., and the Richmond & Petersburg were always standard gauge, 4' 8½".

From the history of the Raleigh & Gaston, included in these pages, it will be seen that the Petersburg R. R. had nothing to do with that road, i.e., did not control, operate, build or sell it to the State of North Carolina. The R. & G. engines were shipped to the *town* of Petersburg, on the Appomattox River, the only way shipment could be made, as the Roanoke River was not navigable to Gaston, and this may have been partly responsible for confusion that exists as to the ownership of the locomotives of the R. & G. and the Petersburg Railroads.

Since the following locomotives were property of the Raleigh & Gaston, they should be removed from the list of Petersburg R. R. motive power, viz., "Raleigh", "Gaston", "Tempest", "Tornado", "Volcano", "Clarksville", (shown as "Clarksburg") and "Granville".

PORTSMOUTH & ROANOKE R. R. Bulletin 101. Page 61.

According to a news item in the Portsmouth, Va. *Beacon* for September 5th, 1834, the locomotive "John Barnett" reached Portsmouth on the packet schooner "Hand", on September 4th, 1834. This is a year earlier than the date of construction shown in the bulletin. The

annual report of this road for 1835 says that the Stephenson-built engine was the second on the road, and that the Bury-built was "expected soon".

RALEIGH & GASTON R. R. Bulletin 101. Page 62.

This road, standard gauge, was developed as follows:—

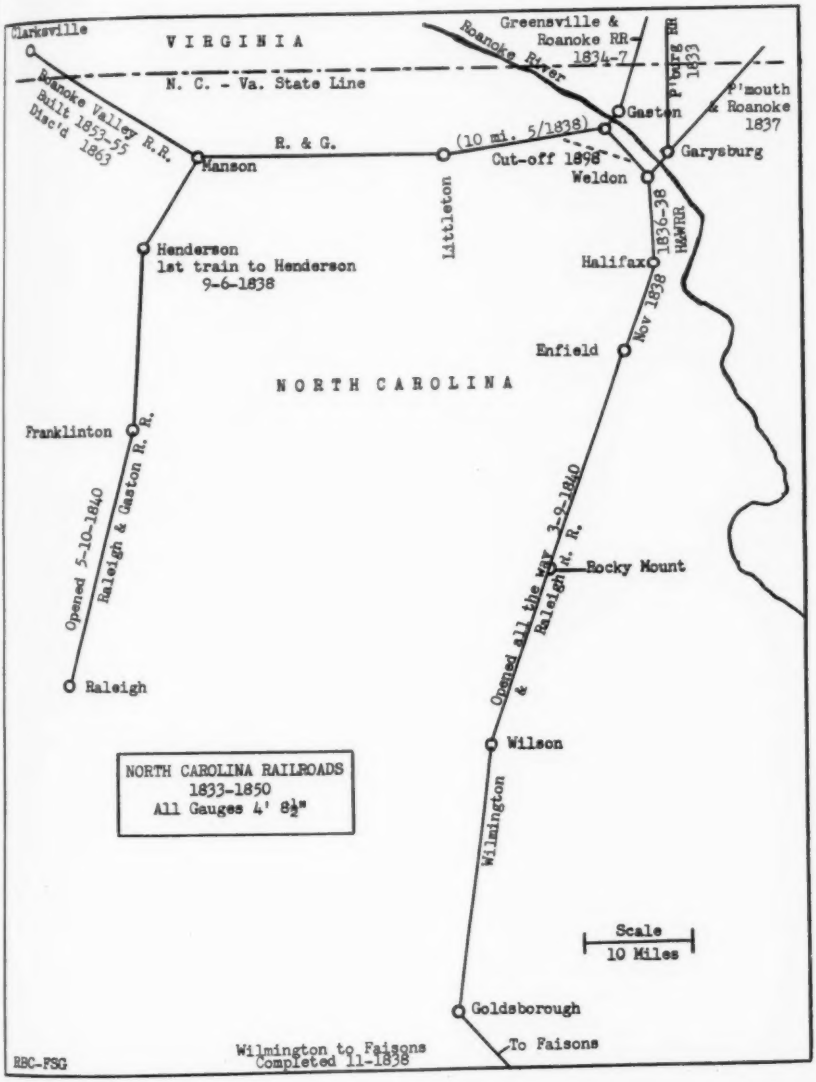
Gaston to Littleton, N. C.	10	miles	May, 1838.
Littleton to Henderson, N. C.	32.5	miles	Sept. 6, 1838.
Henderson to Raleigh, N. C.	42.8	miles	May 10, 1840.

The R. & G. was incorporated in North Carolina, December 21st, 1835, by Special Act of the Legislature. Construction of the road was commenced on Nov. 1st, 1836, and completed on May 10th, 1840, from Gaston to Raleigh. From the very beginning of operation to January 1st, 1846, the road operated under its own management, who were all North Carolina citizens. The road's charter forbade other than North Carolinians holding office in the company. A Special Act of the Legislature, ratified January 7th, 1839, authorized the endorsement of the public treasurer, on behalf of the State, in $500,000 six percent 20-year bonds, secured by a general mortgage to the State, and maturing after 1860, and provided that, at any time within seven years, the State could subscribe for $500,000 of capital stock, which subscription would cancel the mortgage. On January 12th, 1841, further endorsement on behalf of the State on $300,000 six percent bonds was authorized. The solvent stockholders were required to furnish a personal bond of $500,000 as additional security for the 1839 issue.

On December 29th, 1845, the Raleigh & Gaston was purchased by the State of North Carolina, *under foreclosure of the mortgages*, and, on October 1st, 1851, the property was sold to the Raleigh & Gaston R. R. Co., which was incorporated January 29th, 1851, as successor to ALL the property and franchises of the old R. & G. R. R. Co. As can be seen, the Petersburg R. R. had nothing whatever to do with it. In the beginning, the *cities* of Petersburg and Richmond subscribed for some stock in hope that such a railroad would bring business to them, but these subscriptions were of a minor nature, and never affected the affairs of the railroad. The charter at first prohibited foreigners from owning stock, but was later modified so that funds might be secured in England. However, it fell upon the State of North Carolina to provide the money needed to complete the road. Of the money furnished by the State only $2,600 was ever repaid by the R. & G., this in 1843-44. During the same period the State paid $90,374 in interest on R. & G. bonds. A receiver was appointed in 1843.

The following quotations are from the Annual Report of the R. & G., made by its President, George W. Mordecai, in June, 1840.

Page 7. "There are four six-wheel locomotives on the road made by Messrs. D. J. Burr & Co., of Richmond, Va. Though but recently engaged in the construction of locomotives, these gentlemen have already acquired considerable reputation, and their engines are all equal in power


Clarksville
VIRGINIA
N. C. - Va. State Line
Roanoke Valley R.R.
Built 1853-55
Disc'd 1863
Manson
R. & G.
(10 mi. 5/1838)
Cut-off 1838
Greensville &
Roanoke RR
1834-7
Roanoke River
P'burg RR
1833
P'mouth
& Roanoke
1837
Gaston
Garysburg
Weldon
Littleton
1836-38
H&WRR
Halifax
Nov 1838
Enfield
Henderson
1st train to Henderson
9-6-1838
NORTH CAROLINA
Franklinton
Opened 5-10-1840
Raleigh & Gaston R. R.
Raleigh
Opened all the way 3-9-1840
Raleigh R. R.
Rocky Mount
Wilson
Wilmington
NORTH CAROLINA RAILROADS
1833-1850
All Gauges 4' 8½"
Scale
10 Miles
Goldsborough
To Faisons
Wilmington to Faisons
Completed 11-1838
RBC-FSG

to any we have seen. Two eight-wheel locomotives have recently been ordered from Mr. William Norris, of Philadelphia."

Page 16. "The performance of the Company's locomotive 'Tornado' taking a train of 30 cars, loaded, from Henderson to Gaston, furnishes a very fair test of the capabilities of the road . . .".

Page 17. "The locomotives, which we have received from Messrs. D. J. Burr and Co. . . . are equal, if not superior, in beauty and strength of workmanship, and in performance to any in this or any other country. You are aware that I would have preferred engines with eight wheels to these which have only six . . . experience has shown that about 8000 pounds is as much as ought to be put upon a pair of driving wheels for a road like yours."

Besides the "Tornado", there were also the "Tempest", "Volcano", and "Whirlwind" by D. J. Burr & Co. The Annual Report of 1848 states that the round-house and machine shop, in Raleigh, were destroyed by fire on February 28th, 1848, and the Governor said that "four of your best engines burned, one entirely ruined." Since the "Tornado", "Tempest" and "Volcano" appear on subsequent reports, but not the "Whirlwind", and, since the "Clarksville", of the same class as the "Whirlwind", makes an appearance, it may be assumed that it is the latter engine renamed. The name "Clarksville" derives from the town at the western end of the Roanoke Valley R. R., which was operated by the R. & G. for about two and a half years, more or less, due to the fact that the R. V. had no funds for the purchase of motive power until 1855, when the "Clarksville" was returned to the R. & G. It disappears from the R. & G. lists in 1859, without comment. The "Tempest" is last shown in 1860; the "Tornado" and the "Volcano" were condemned as of July, 1868.

Probable Roster of the R. & G. to 1840

"Raleigh"	Tayleur #38	1836	0-4-0	12x16"	54"	
"Gaston"	Tayleur #39	1836	0-4-0	12x16"	54"	Disposition unknown.
"Tornado"	C. J. Burr	1838	4-2-0			Condemned July, 1868.
"Tempest"	C. J. Burr	1838	4-2-0			Last record, 1860.
"Volcano"	C. J. Burr	1838	4-2-0			Condemned July, 1868.
"Whirlwind"	C. J. Burr	1838	4-2-0			Renamed "Clarksville" and used on the R. V. until 1855. Off records in 1859.
?	Wm. Norris	1840	4-4-0			One of two ordered as per Mordecai's report of June, 1840.
?	Wm. Norris	1840	4-4-0			One of two ordered as per Mordecai's report of June, 1840.

RICHMOND, FREDERICKSBURG & POTOMAC R. R.

Bulletin 101. Page 62.

The Louisa Railroad was completed to Frederick Hall, December 20, 1837, and to Gordonsville, 48.6 miles, early in 1840.

ROANOKE VALLEY R. R.

Although this road is not listed in Bulletin 101, it might be in order to correct an erroneous impression that exists regarding the alleged use of TWO track gauges on this road. The road extended from Manson, on the Raleigh & Gaston, to Clarksville, Va. It was constructed in the years 1853-55, and was discontinued in 1863, when it was torn up to help build other lines. It was entirely standard gauge and connected with the R. & G., at Manson. It was never connected to the five-foot gauge of the Richmond & Danville. If the Roanoke Valley had built the 31-mile section between Clarksville and Keysville, in Virginia, to connect with the R. & D. at that point, the track gauge would have been, in all probability, standard gauge; and had the R. & D. constructed the line it would naturally have been to five-foot gauge. The R. V. never laid any track to that gauge. The R. & D. eventually constructed the road from Keysville to Clarksville, under the name of Richmond & Mecklenburg R. R., which is still under lease to the Southern Railway Company.

When the R. V. was completed, the company was in financial trouble, and the R. & G. operated the road for two and one-half years, more or less. It was during this time that the R. & G. engine "Whirlwind" was renamed "Clarksville" and was used on the Roanoke Valley.

In 1855, the R. V. received an engine from Norris, and, at the outbreak of the Civil War, owned two standard gauge Norris engines.

Locomotives on the Roanoke Valley R. R., as of Sept. 30th, 1859, were

"Norfolk"	Norris & Son	1855	4-driver	10½" x 20"—60"
"Roanoke"	Norris & Son	1857	4-driver	10½" x 20"—54"

These were the only engines ever owned by the road. Both were confiscated by the Richmond & Danville, in 1863, for use on the Piedmont R. R., and were scrapped there. They were too small.

SOUTH CAROLINA CANAL & RAILROAD CO. Bulletin 101. P. 64.

This road was built to Hamburg, S. C., across the Savannah River from Augusta, and did not reach Augusta until 1853. Therefore no continuous line existed to Atlanta in 1837. Neither was there any Georgia R. R. on November 1st, 1837, except some graded roadbed and about ten miles of track to Belair. Connection with the Georgia R. R. was not made until five years after the South Carolina road entered Augusta, or about 1858-59. Apparently, the Augusta city council allowed the S. C. R. R. to connect with the Georgia R. R., but still prohibited a connection with the Augusta & Waynesville (now C. of Ga.), which was a competitor. This is understandable because of the interest the city had in the Georgia R. R. The Annual Report of the S. C. R. R. for 1858 states that the work of joining the two roads was "soon accomplished", after the city granted permission.

The gauge of the VICKSBURG & JACKSON R. R. was five feet. All of that line from Vicksburg to Meridian was that gauge until 1886.

Gauge of the WEST FELICIANA R. R. was 4′ 8½″, and the road, 27 miles long, was completed in March, 1845.

WILMINGTON & RALEIGH R. R. Bulletin 101. Page 75.

Gauge, 4′ 8½″

Upon completion of this road, its Chief Engineer, Walter Gwynne, under date of April 11th, 1840, made a detailed report to the Board of Directors, from which report the following interesting items are quoted.

"On the 7th March, 1840, the last spike was driven; and on the 9th, the locomotive "New Hanover" passed through the line to Weldon: the "Brunswick", from Roanoke (Weldon) to Wilmington; and the road was formally opened."

"I turn over to you (the Board of Directors) with a supply of 4 steamboats, 12 locomotives, 6 eight-wheel, and 2 four-wheel coaches, 20 eight-wheel burthen cars . . . etc."

(Note that Gwynne says 12 locomotives on the date of his report, April 11th, 1840; they appear on the following list as of 1840 and ten are still shown on the 1847 roster together with those added in the meantime, and with none of the original twelve renamed.)

And, further, "The additional motive power, which it would be prudent to keep in reserve to insure the regularity of the mail and which the increased business of the autumn months may require, has been contracted for."

Gwynne later dropped the final "e" from his name. In 1853 he left the W. & R. to become Chief Engineer of the North Carolina R. R., then being built. Upon its completion in 1856, he resigned to become Chief Engineer of the Blue Ridge R. R., in South Carolina, which had more than two miles of tunnels to bore.

The Chief Engineer's report of April 11th, 1840, shows the W. & R. owned 12 locomotives on that date. These are listed as follows:—

Wayne (Scrapped 1844-45)	Stephenson	1837	2-4-0
Nash	Stephenson	1837	2-4-0
Halifax	D. J. Burr	1838	
Sampson	D. J. Burr	1838	
Greene	D. J. Burr	1838	
Lenoir (Scrapped 1844-45)	Baldwin #120	1839	4-2-0
Johnston	Baldwin #121	1839	4-2-0
Edgecombe	Norris	1839	4-2-0
Duplin	Norris	1839	4-2-0
Bladen	Norris	1839	4-2-0
New Hanover	Norris	1839	4-2-0
Brunswick	Norris	1839	

And in service on September 1st, 1847, ten of the above twelve, plus the following seven:—

Cumberland	Norris	1840	4-4-0
Henry Clay	Norris	1840	4-4-0
Columbia (ren J. C. Calhoun)	Baldwin #181	1843	0-6-0
J. K. Polk	Baldwin #236	1845	0-6-0
W. A. Graham	Baldwin #245	1846	4-4-0
E. B. Dudley	B. P. & S.*	1846	4-4-0
W. H. Haywood	B. P. & S.*	1846	4-4-0

* Builder shown as Burr, Pea & Samson.

Thus is shown a total of 17 engines in service in April, 1847, allowing for the two scrapped between 1844 and 1847; and of these 17 engines five were Burr engines, all in service at the same time, with *only* the "Columbia" renamed.

On March 9th, 1840, the "New Hanover" and the "Brunswick" made a trip over the entire road, 161½ miles, in reverse directions.

The original twelve engines and the "Cumberland" were named for counties. Use of the names "Henry Clay" and "J. C. Calhoun" needs no explanation, nor does that of "James K. Polk", North Carolina's United States President. Graham and Dudley were both North Carolina governors. The name "Columbia" doesn't fit into any scheme of names, hence was renamed "J. C. Calhoun". That it bore the name "Columbia" in the first place, could indicate that it was originally built for some other road, later becoming the property of the W. & R.

This engine was the first completely-built Flexible Beam Truck Baldwin 0-6-0, but was second in line to the Georgia Railroad's "Tennessee", which, although bearing shop number 180, was actually a rebuilding of shop number 61. This is supported by Baldwin history and Annual Reports of the Georgia Railroad.

New Orleans & Carrollton Railroad

By E. Harper Charlton

The following notes and dates are from various sources and were used by me in "Street Railways of New Orleans." I have found no dates in conflict until Bulletin 101 (page 45). The material in various libraries in New Orleans and the preserved files of the New Orleans "BEE" (a French language newspaper) and material assembled by Hugh Mercer Blain for "A Near Century of Public Service" which was put out by New Orleans Public Service Inc. in 1927.

I shall quote from Blain, all from the minutes of the company.

". . . as told in these old minute books are of great interest. On Feb. 9, 1833 the Legislature granted the charter . . ." "On Feb. 27, 1833 the City Council of New Orleans authorized the N. O. & C. R. R. Co. to lay a single track . . . through the center of Baronne Street . . . to Canal Street."

"March 18, 1833 books opened for subscriptions to the stock . . . they were closed April 22."

". . . first locomotive did not come before May 15, 1835 because minutes of that date report the bill for an engine received and the engaging of an engineer authorized." "On Sept. 21, 1835 we are told the John Thorn was the engineer engaged, and doubtless he was the one who piloted the first train from Canal and Carrollton five days later." "Oct. 29, 1835 we find the second engine assembled" "By the way, these modest little dummies were dubbed respectively *"New Orleans"* and *"Carrollton."*

Basic outline of dates.

1833. Chartered Feb. 9, 1833 by State.

1833. Franchise by City of New Orleans Feb. 27, 1833.

1835. Jan. 2, 1835 arrangements made for horses to open the first branch (which operated from Baronne and Poydras to Magazine and up Magazine to Jackson). Service opened "second week in January" "a car had to be bought from the Pontchartrain Railroad" to open on time. (This was horse).

1835. Sept. 26, 1835 Service opened from Canal Street to Carrollton. (This was Steam). (The branches were always horse).

If the above is checked with the dates presented on page 45 Bulletin the errors show in the first three dates set down.

The Date of Feb. 1st 1893 is correct regarding electrification.

The matter of Gauge is indeed interesting. I cannot state flatly that it is wrong, but it is the first I have ever come across that gave the gauge as anything but 4′ 8½″. Every other old railroad around New Orleans from the first—The Pontchartrain was 4′ 8½″. The mix-up of

the returned engine to England I am sure was due to the fact that the gauge of the engine was wrong. This I hope to be able to follow up and clear.

Incidentally, the statement of *mileage included the two branches.* The Magazine-Poydras line and the Jackson line.

"Street Railways of New Orleans" gives basic coverage on the highlights of N. O. & Carrollton R. R. Space did not permit as full recounting as Blain resorted to in his work.

PONTCHARTRAIN. Bulletin No. 101. Contains one error as follows:

"1932 Mar. 15 Line abandoned" That is in error. *PASSENGER service ended on March 15, 1932.* Last train leaving Milneburg at 6:25 P. M.

Road *continued* to operate *FREIGHT service until 1935.* Exact date can be furnished by L. & N. R. R. No notice was taken of it until municipal engineering work started which involved the Lake front and Elysian Fields Avenue. It was early in 1935 however when the actual dismantling started.

Worth Reading

Compiled by

ELIZABETH O. CULLEN, Librarian (Ret.), Bureau of Railway Economics, Association of American Railroads, Washington 6, D. C.

BOOKS AND PAMPHLETS

Alaska—Its Economy and Market Potential, by F. Martin Lewis, U. S. Dept. of Commerce. vi, 61 p., maps. Washington 25, D. C. Superintendent of Documents, U. S. Govt. Print. Off. 70 cents. *Transportation:* 21-30.

Alaska's Railroad Builder—Mike Heney, by Edward A. Herron. 192 p. New York 18, Julian Messner, Inc., 8 W. 40th St. $2.95. "During the Alaska Gold Rush, Mike Heney built the White Pass and Yukon Railroad—the toughest hundred miles of track in the world. Later he constructed the Copper River and Northwest Railway . . ."

Albert Fink and the Pooling System, by D. T. Gilchrist. pp. 24-29, illus., reprinted from The Business History Review, Harvard Univ., Spring 1950. For copies write author, 4101 W St., Apt. 5, Washington 7, D. C.

The American Society of Mechanical Engineers, 29 W. 39th St., New York 18. Papers for presentation at the ASME-AIEE Railroad Conference, Pittsburgh, Pa., April 20-21, 1960:—

Automated Testing of Railway Freight Brake Control Valves, by P. W. Brath & E. T. Skantar. 8 p. illus.; *Lateral Forces between Wheels and Rails—An Experimental Investigation*, by Erik Olson and Stig Johnsson. 8 p. illus.; *The Slippery Spot Concept of Adhesion*, by John C. Aydelott. 7 p.; *Spectographic Analysis of Diesel Engine Lubricating Oils by the Rotating Platform Method*, by J. C. Smith. 4 p. illus.; *Study of the Defects that Originate and Develop in the Treads of Railroad Wheels During Service*, by L. M. Wandrisco & F. J. Dewez, Jr. 12 p. illus.; *Understanding Wheel-Rail Adhesion*, by G. M. Cabble, Jr. 7 p.

America's First Locomotive "The Stourbridge Lion"—A Documental Proof, by E. B. Callaway. 15 p. Honesdale, Pa., The Author. 25 cents.

The Channel Tunnel Study Group—Report, 28th March, 1960. ii, 33 p. London, Eng., St. Clements Press Ltd. British Group representatives: Channel Tunnel Co. Ltd., 1 Broad Street Place, London, E. C. 2, Eng. Summaries: *The Channel*, by Eleanor Pierson (Town & Country, July 1960: 56-57, 98-99, with colored drawing and diagram of "The English depot"); *Harvard Takes Over Channel*, by Mammon. (London, Eng. Observer, July 31, 1960: 2); *Harvard Has a Hand in Channel—Wall Street May Finance Napoleon's Dream*, by Frank C. Porter. (Washington, D. C. Post, Aug. 5, 1960: D6).

Cheminot de Djibouti à Addis-Abeba—Le Chemin de Fer Franco-Éthiopien, by Hubert-Pierre Dubois. 252 p. illus. Paris, France,

Librairie Academique Perrin, 35, Quai des Grands-Augustins. No price stated.

Compagnie Internationale des Wagons-Lits et des Grands Express Européens. Exercice 1959. 24 p. illus., maps, tables. Bruxelles, Belgium, [The Compagnie], 53 Boulevard Clovis.

Comparisons of the United States and Soviet Economies, by Central Intelligence Agency in cooperation with the Dept. of State and Dept. of Defense for Subcommittee on Economic Statistics of the Joint Committee, Congress of the United States. v, 50 p. Washington 25, D. C., Supt. of Documents, U. S. Govt. Print. Off. 20 cents.

Dear Editor . . . a family portrait. [28] p. illus. Traffic World, Part III, June 18, 1960. "With the thought that our readers might like to know more about the men who make Traffic World tick, we have prepared the following 'profiles' of the editors whose job it is to bring you, week after week, the complete and accurate picture of what is happening in the transportation world."

A DELUXE Reprint of the 1881 BALDWIN LOCOMOTIVE WORKS Illustrated Catalogue of LOCOMOTIVES with Foreword by Grahame Hardy. 16 p. illus. [printed in 2 colors]. Berkeley 10, Calif., Howell-North Books, 1050 Parker St. $10.00.

The Denver & Rio Grande Western Railroad—A Geographic Analysis, by Frank Henry Thomas. xxi, 269 p. illus., maps, diagrs. Evanston, Ill., Dept. of Geography. Studies in Geography No. 4. No price stated.

Diesel-Electric Motive Power, by Research Dept., Simmons-Boardman Publishing Corp., 30 Church St., New York 7. $5.00. 1958 Inventory—1957 Installations. 18 p. Supplements: 1958 Installations . . . 5 l.; 1959 Installations . . . 10 l.

Donner Pass, by George R. Stewart. San Francisco, Calif., The California Historical Society. 96 p. illus. map. $1.95. Story of country made notable by the Stevens and Donner parties, the gold-hunters, and the railroad builders.

Eeufees Van Die Suid-Afrikaanse Spoorweë—Centenary of the South African Railways 1860-1960. [104] p. illus., part in color. Johannesburg, Union of South Africa, South African Railways Publicity and Travel Dept., P. O. Box 1111. Free.

Federal Transportation Policy and Program, by U. S. Department of Commerce, prepared under the direction of Frederick H. Mueller, Secretary of Commerce, March 1960, and submitted to the Congress by President of the United States. 32 p. Washington 25, D. C., Superintendent of Documents, U. S. Govt. Print. Off. 20 cents. *Appendix—Rationale of Federal Transportation Policy*, by Ernest W. Williams, Jr. and David W. Bluestone. April 1960. v. 71 p. 30 cents.

Fiddletown & Copperopolis—The Life and Times of an Uncommon Carrier, by Carl Fallberg. Foreword by Lucius Beebe. A book of cartoons, unpaged. Reseda, California, Hungerford Press. $7.95.

French Technical-Advance in the Field of Railroad Electrification, by F. Nouvion, French National Railroads. 8 p. diagrs. Paper No. 60-602, American Institute of Electrical Engineers, 33 West 39th St., New York 18. $1.00 to non-members.

An Historical Geography of the Railways of the British Isles, by Ernest F. Carter. x, 637 p. London, W. C. 1, Cassell & Co., Ltd. 63 shillings net. ". . . The purpose of this large-scale work has been to set out in chronological order the individual railways of the British Isles, and to trace in the broadest and most comprehensive terms, their development and history."

India. Ministry of Transport (Railway Board) Report . . . on Indian Railways for 1958-1959. 2 vols. illus. maps, tables, statistics (Vol. 2). Delhi, India, Manager of Publications. No price stated.

[*Interstate Commerce Commission*]—*Avoidable Delays in Commission Proceedings*, by John H. Winchell, chairman. *How a Formal Case is Handled after the Briefs are Filed*, by Rupert L. Murphy, commissioner. *How the Commission Uses Cost Evidence*, by Howard Freas, commissioner. *Regulation—Stimulus or Stumbling Block*, by Everett Hutchinson, commissioner. Remarks at annual meeting, Association of Interstate Commerce Commission Practitioners, Dallas, Texas, May 12-13, 1960. Press releases from I. C. C., Washington 25, D. C. Probably will be printed in I. C. C. Practitioners' Journal in the Fall.

The Iron Horse Goes to War, by Bill Bunce. 16 p. illus. Washington 6, D. C., A. A. R. Schooland College Service, Transportation Bldg. Free. Picture story about railroads in the Civil War—how they became the military asset in war that they have been ever since.

Japanese National Railways. Railway Technical Research Institute. Quarterly Report, Vol. 1, No. 1, March 1960—pagination varies, illus., diagrs. Apply to the Institute, P. O. Box No. 9, Kunitachi, Tokyo, Japan.

Lima Locomotives. 48 p. illus. San Marino 9, Calif., Pacific Railroad Publications, Inc., 2304 Melville Drive. $3.00. Reprinted from Catalog No. 16, 1911, of Lima Locomotive and Machine Co.

Manpower Utilization in the Railroad Industry—An Analysis of Working Rules and Practices, by Morris A. Horowitz. viii, 68 p. Boston 15, Mass., Northeastern Univ. Bur. of Business and Economic Research. $2.00.

Missiles Transportation Data. iv, 76 mimeo. p. Washington 25, D. C., U. S. Military Traffic Management Agency. Dated April 1960.

Monorails, by Hermann S. D. Botzow, Jr. vii, 104 p. illus. New York 7, N. Y., Simmons-Boardman Publishing Corp., 30 Church St. $3.75. ". . . an objective view of the potential of monorail transportation in the United States. . . ."

National Capital Transportation Act of 1960. Hearings before Joint Committee on Washington Metropolitan Problems, Congress of the United States, 86th., 2nd Session . . . May 5 and 6, 1960. iii, 271 p. illus. Washington 25, D. C., U. S. Govt. Print. Off. "Printed for the use of the Joint Committee. . . ." pp. 273-299, *Recommended Work Program for a Transportation Development Agency in the Washington Metropolitan Area*, by Robert L. Banks, transportation consultant.

National Museum of Transport, Inc. Barretts Station Road, St. Louis 22, Mo. Civil War Exhibit opened May 12, 1960, (and) *Plans for new Museum—"the Showcase of Transportation History"* by Charles W. Lorenz, A. I. A., Architect. [21] l. illus.

N. Z. R. [New Zealand Railways] *Locomotive List 1959*, compiled by T. A. McGavin, editor, New Zealand Railway Observer. May 1960. 31 p. illus. 5 shillings.

Pacific Slope Railroads, from 1854 to 1900, by George B. Abdill. 182 p. illus. Seattle 11, Washington, Superior Publishing Co., 2809 Third Ave. $10.00.

Pakistan—Transportation and Communications—North Western Railway Open Line Programme for the years 1950-51-1956-57; Eastern Bengal Railway Open Line Programme for the years 1950-51-1952-53; Eastern Bengal Railways and The Port of Chittagong (Railway) *Open Line Programme for the years 1955-56-1956-57.* Karachi, Pakistan, Government of Pakistan Press. No prices stated.

The Quality and Economic Significance of Anticipations Data—A Conference of the Universities. A Report of the National Bureau of Economic Research, New York. xi, 466 p. Princeton, N. J., Princeton University Press. $9.00. pp. 181-203, *The Railroad Shippers' Forecasts and the Illinois Employers' Labor Force Anticipation: A Study in Comparative Expectations*, by Robert Ferber. pp. 205-238, *Quantitative Evidence for the Interwar Period on the Course of Business Expectations: A Revaluation of the Railroad Shippers' Forecast*, by Albert Gailord Hart.

Rail Transportation and the Economic Development of Soviet Central Asia, by Robert Taaffe. xii, 186 p. illus. maps. Chicago, Ill., the University of Chicago Department of Geography, 5801 Ellis Ave. Research Paper No. 64, 1960. $4.00.

Railroad Ore Cars Called Jennies—Memorandum . . . April 12, 1960. 2 l. Washington 6, D. C., Bureau of Railway Economics Library, A A R. Free.

Railroads Come to Iowa, by William J. Peterson, pp. 177-262, ills., maps, front and back cover in color. Iowa City, Iowa, The State Historical Society of Iowa. Special Issue of THE PALIMPSEST, April 1960. 50 cents.

Railroads In The Days of Steam. Narrative by Albert L. McCready in consultation with Lawrence W. Sagle. 153 p. illus. (part col.) ports. maps. New York, American Heritage Pub. Co.; book distribution by Golden Press. $3.50.

Railroads—Their Development, Problems and Prospects, by Burton N. Behling. 32 mimeo. 1. Washington 6, D. C., Bureau of Railway Economics, A A R, Free. Presentation to Transportation Study Group, National Academy of Sciences, National Research Council, Woods Hole, Mass., August 1960.

Rapid Transit—A Brief Reference List by Place, August 23, 1960. cover-title, 5 mimeo. 1. Washington 6, D. C., Bureau of Railway Economics Library, A A R. Free. Reports, studies and comments 1956-1960 on Boston, Chicago, Cleveland, Detroit, Illinois (State), Los Angeles, New Jersey-New York Metropolitan Area, New York City, Philadelphia, San Francisco, Seattle, Toronto, United States, Washington, D. C.

A Regional History of the Railways of Great Britain. Vol. I—The West Country, by David St. John Thomas. x, 212 p. London, W. C. 2, England, Phoenix House Ltd., Charing Cross. 30 shillings. ". . . This is the story of one of the glories of nineteenth-century energy, vision and enterprise as it was manifest in the western counties, and it brings that story to nationalisation and beyond . . ."

Report on Route and General Plan for a Railway in Northern British Columbia for the Wenner-Gren British Columbia Development Co. Ltd., by Col. S. H. Bingham (Ret.), consulting engineer, 109 E. 35th St., New York. 66 p. maps, diagrs. Summary captioned: 697-Mile Route Proposed for Pacific Northern Railway. (Railway Age, v. 148, no. 26: 76; June 27, 1960).

Railroads to the Rio, by J. L. Allhands. 213 p. illus. maps. Salado, Texas, The Anson Jones Press. $6.00. Brief histories of Corpus Christi & Rio Grande Ry. Co., Corpus Christi, San Diego & Rio Grande Narrow Gauge RR Co., Guadalupe Valley Ry. Co., Little Rock, Hot Springs & Western RR, St. Louis, Brownsville & Mexico Ry. Co., San Antonio & Aransas Pass Ry., San Benito Rio Grande Valley Interurban, Southern Pacific, and Texas Mexican Railroad.

A Report on USSR Electric Power Developments 1958-1959. Second Edition, May 1960. New York 17, Edison Electric Institute, 750 Third Ave. xiii, 81 p. illus. No price stated.

Reports to be presented at the Sixty-First Annual Meeting of the Signal Section, Association of American Railroads, Chicago, Oct. 11, 12, and 13, 1960. 157 p. illus., tables, diagrs. At head of cover-title: Signal Section Advance Notice . . . Vol. LVII. No. 1. Chicago 5, Ill., The Section, R. H. C. Balliet, Secretary, 59 E. Van Buren St., Subscription to Advance Notice *and* Minutes of Annual Meeting $12.00. The many subjects include: *Use of "Off Track" Equipment by Railroad Signal Forces"* on Southern Ry. System: 9-A; *Train Hour Value—Specified Elements of Train Hour Cost per Road Freight Train Hour—Year 1958 (Excluding road freight train crews' wages)*—Table II: 10A-12A; *Tabulation of Car Retarder Systems Applied to Classification Yards 1959:* 12-A and 4 folded sheets; *Detector Track Circuits in Automatic Classification Yards:* 16-A-18A; *Track Fullness Systems in Automatic Classification Yards:* 19A-20A; *Hand Skates in Classification Yards . . .* have become a problem . . .: 20-A-21A; *Ultrasonic Cleaning . . .* for cleaning apparatus in railroad signal shops, possibly without requiring complete disassembly of the apparatus. This report is an introduction to the subject, to explain the equipment involved and method of use . . .: 23-A-24A; *Materials Research:* 63A-73A; *Highway Grade Crossing Protection:* 74-A; *Signaling Practice—Noteworthy Changes . . .:* 105-A-109A; *Use and Advantages of Underground Centralized Traffic Control Code Lines in lieu of Open Wires on Pole Lines:* 119A-120A; *The Development and Adoption of a Universal Format for the Interchange of Freight Car Waybill Information in Train-Consist Form as related to Use of Automatic Route Selection Circuits in Classification Yards:* 121A-122A; *The Need for Compatible System of Exchange Advance Information between Railroads:* 123A; *History, Progress and Accom-*

plishments of the Systems and Procedures Coordination Committee: 124A; *General Instructions—Universal Format for Train Consist Information:* 125A-129A; *Electronics . . .—Glossary of Terms to be Added:* 133-A-136A; *Circuit Design—Typical Circuits Representing Current Practice for Railway Signaling* . . . five new sheets: 148A and folded plans Sig. Sec, 8048A (Sheet 2); 8087A; 8088A (Sheets 1 and 2); 8089A.

A Review of Railway Operations in 1959, by J. Elmer Monroe. 51 p. Washington 6, D. C., Bureau of Railway Economics, A A R, Special Series No. 94, April 1960. Free. ". . . a reprint of the article that appeared in RAILWAY AGE on January 18, 1960, and is published here with the permission of the Editor of that publication. . . . Certain preliminary figures and information that appeared in the original article have been revised and brought up to date as of April 1960."

The Rocky Mountain Official Railway Guide, February 1906—Reproduction June 1960. 114 p., illus., maps, advertisements. San Marino 9, Calif., Pacific Railway Journal, 2304 Melville Drive. $3.50.

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. . . *Schedule of Advance and Regular Service -- Fast Dependable Service for FRUITS and VEGETABLES From FLORIDA to Eastern, Northern and Western Points—Season 1959-1960*, cover-title, [11] p. incl. map. Richmond, Va. Seaboard Air Line Railroad Co. Free on request to J. P. Roberts, Freight Traffic Manager. "ADVANCE SERVICE . . ." [1]-[2]. "REGULAR SERVICE—THE MARKETER" and Connecting Trains [3]-[8]. "Representatives [in 58 cities] [10].

La Situacion del Transporte Terrestre en España—Segunda Edicion. 334 p., Indexed. Madrid, Spain, Secretaria General Tecnica, Manisterio de Obras Publicas, 1960. For copies apply to Spanish Embassy Press Office, National Press Building, Washington 4, D. C.

Soviet Nuclear Propulsion (Yadernyye Dvigateli), by R. G. Perel'Man. 46 p. Washington 10, D. C., Triumph Publishing Co., 1414 Monroe St., N. W. $2.85.

Sparton Railway Equipment. . . . Sparton Easy Loader. Illus. brochure. Detroit 12, Michigan, Sparton Corp., 17333 Healy Ave. Free.

Standard Alco Locomotives. 31 p. illus. New York 7, N. Y., Alco Products, Inc., 30 Church St. Free.

Steam Locomotives of the Burlington Route, by Bernard Corbin and William Kerka. 304 p., illus., ports., maps, diagrs. 1st Edition 1960. Red Oak, Iowa, The Author, P. O. Box 219. $15.00.

Steam on the Sierra: The Narrow Gauge in Spain and Portugal, by Peter Allen and Robert Wheeler. 203 p. illus. London, W 8, England, Cleaver-Hume Press Limited, 31 Wright's Lane. 35 shillings net.

Steam—Wide and Narrow, by Ed Wojtas. 64 p., illus. No price stated. Champaign, Illinois, P. O. Box 62. "This is the story—in pictures—of a trip. . . . that will long be remembered by the 275 fans from

32 states that climbed aboard the Illini Railroad Club's special train on a 3,061 mile 'Journey to Yesterday' . . ."

Traffic and Transport in Nigeria, by Gilbert Walker. London, England. Her Majesty's Stationery Office. £3 15s. net. Colonial Office—Colonial Research Studies No. 27. illus. tables. "The Example of an Undeveloped Territory." Transport by donkeys, camels, head-loads, motor vehicles, canoes and barges, airplanes, bicycles and the Nigerian Railway. Changes in Traffic flows, rates and commodities by each type of transport. ". . . 16. The Nigerians are great travelers. They work in one part of the country, live in another and go to bush, village and town markets as we British go to the shops . . ." (5). ". . . Traffic by railway, both freight and passengers, is comprehensively recorded. . . . Schemes for investment in rivers, railways and roads cannot usefully be discussed in ignorance of the contribution to the general flow of freight and passengers made by the traffic carried over each. It should be a first duty of the Ministry of Transport to assemble full (and comparable) statistics of the volume, value and densities (ton- and passenger-miles a mile of track) of the traffic carried by each of the several means of transport. Some idea, too, of whence the traffic came and where it was going would be an advantage. . . ." (viii).

Transport Mobilization Readiness, by Everett Hutchinson, Interstate Commerce Commissioner. 24 proc. p. Washington 25, D. C., Interstate Commerce Commission. Press Release Aug. 5, 1960. Talk to National Academy of Sciences, National Research Council, Woods Hole, Mass., Aug. 5, 1960.

Transportation Corps Professional Reading List. 21 p. Fort Eustis, Va., Transportation Corps Library, U. S. Army Transportation School. Free.

Transportes no. Brasil, by Alberto Wanderley. 132 p. Maps. Belo Horizonte, MG, Brasil, Universidade de Minas Gerais, Rua Curitiba 832. Cr. $100,00. Estudos Econômicos Políticos e Sociaia No. 20.

Unusual Locomotives, by Ernest F. Carter. 221 p. illus. London, England, Frederick Muller Ltd. 21 shilling net." . . . All down the years there have been designers who have attempted radically to improve the more or less standard design of engines of their day, some with a certain amount of success and others with failures so utter and complete that only details of their design, and perhaps a few very early photographs, remain. It is to these unique and unusual locomotives that this book is mainly devoted, in the sincere hope that it will show some of the well-meaning "inventions", which, though they failed to do what their inventors expected, were links in the chain of locomotive progress without which the steam giants of the world's railways would have not been possible . . ." Preface xi. *The World's Ultimate Locomotive,* Ch. 10.

Why Consolidation?—Chapter 2, by John W. Barriger. 11 p. Pittsburgh 19, Pa., Pittsburgh & Lake Erie Railroad. Free. Talk to Stanford University Transportation Management Program, Stanford, Calif., July 13, 1960, by president of P&LE.

Economics of Transportation—Fifth Edition—1960, by D. Philip Locklin, professor of Economics, University of Illinois. xii, 873 p. Homewood, Ill., Richard D. Irwin, Inc. $10.65. ". . . In this edition the organization of the previous one has been preserved, but the text has been

carefully revised throughout; recent developments have been incorporated, and factual material has been brought up to date. . . . there has been some expansion of the material relating to transport coordination and interagency relationships, particularly that pertaining to Interstate Commerce Commission policy in dealing with competitive rate relationships among the different modes of transport, although regulatory policy in this area is undergoing re-examination and possible change. . . ." Preface: ix.

ARTICLES IN PERIODICALS

Air Force Tests Concept of Rail-Based Missiles, by Harry L. Tennant. Modern Railroads, July 1960: 52-56. Illus.

British Railways Diesel-Electric Pullman Trains. The Railway Gazette, June 24, 1960: 741-746. Illus. "High-speed six- and eight-car units for extra-fare services in London Midland and Western Regions."

Britain's Craziest Railroad Visits the U. S., by Christine Hotchkiss. This Week Magazine, June 12, 1960: 26-27. Illus. "Rowland Emett's famous 'Nellie' chugs right out of the pages of Punch." While over here Mr. Emett was asked "to solve that great American railroad problem, commuting. "Mr. Emett responded with alacrity—and originality." His solution—the *Emett Commuting Special* with explanations by the artist in This Week Magazine, August 14, 1960: 27. Include "The adult Western car . . . will deliver commuters to the office completely awake"; "Sardine doubledecker"; "The gateway seat . . . should aid in beating the rush down the platform"; "Instant bar car".

Bridge now proposed for English Channel [by engineering firms Dorman Long, Ltd., London; Merritt-Chapman and Scott, New York and Française Enterprises, Paris] AP dispatch dated London, April 2. Washington, D. C. Sunday Star, April 3, 1960: h-24; Wall Street Journal, Eastern ed., April 4, 1960: 1; The Railway Gazette, April 8, 1960: 410. ". . . bridge to include two railway tracks and a five-lane roadway, from the South Foreland, east of Dover, to near Sangatte. It would be 25 miles long, . . . The cost would be some £200 million, and the bridge would take five years to complete. . . ."

The Channel Tunnel, by M. A. Cameron. Journal of the Institute of Transport, May 1960: 303-308.

The Channel Tunnel? No, by George! by John Beaven. The New York Times Magazine, July 31, 1960: 11, 40-41. Illus.

The Channel, by Eleanor Pierson. Town and Country, July 1960: 56-57, 110, 112. Colored drawing of proposed "English Depot of the Channel Tunnel." Comment: *The Union Jack Pot*, by Michael Brent: 39, 110, 112.

Les Chemins de Fer de l'URSS, Revue Générale des Chemins de Fer, Juin 1960: 333-362. Maps. Illus. Table. Summary of reports by three French missions to USSR in 1959.

Cofferdam at Mile 6. Quebec Cartier Mining Railroad, Port Cartier, Quebec, by J. Zorski. ". . . bridge over the Rochers River . . ." The Engineering Journal, Engineering Institute of Canada, May 1960: 82-83.

CONTAINERIZATION: Progress and Problems. Shipping Management, June 1960: 39 p. Illus.

THE DAY THE TRAINS STOPPED. The New Yorker, May 28, 1960: 32-34. Illustrations show varied reactions of train users and a baggage-master.

The Diary of Anne Dovel—a girl in love with locomotives. Trains, July 1960: 22-26. Photography by O. Winston Linke. ". . . fan trip regulars in the East will tell you that the slender figures of a hospital technician named Anne Dovel is as familiar on excursions as the Reading's redoubtable 2124. Her age is her business, but we can tell you that she didn't ride a train until 1952. Today she has ridden more than 70 railroads, is a member of three enthusiast organizations (N. R. H. S., R. R. E., R. & L. H. S.), collects employee time cards and train orders, and is a better than average 35 mm. color photographer. . . ."

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First Soviet Gas-Turbine Locomotive. The Railway Gazette, June 10, 1960: 683-684. Diagrs. 140-ton locomotive of 3,500 b.h.p. one half of twin unit for hauling 3,000-ton trains on the level."

Freight Rates and the Weeks and the Mueller Reports, by Joseph R. Rose. Distribution Age, June 1960: 39, 75-78, 80.

General American's 65,000 Money Makers, by Philip Siekman. Fortune, June 1960: 148-151, 172, 176, Illus. "The freight-car business is as usual suffering from over capacity, but GATX has shown remarkable endurance. Its big asset; car leasing. Its more spectacular bets: piggyback cars and a new way to make cement. . . ."

General Manager's Inaugural Address to Divisional Superintendents' 47th Annual Conference. Rail Times, North Western Railway, Pakistan, March 1960: 7-13. Divisions, listed alphabetically, are Karachi; Lahore; Multan; Rawalpindi; Quetta.

Industrialisierung und Verkehr in China, by Wehde Textor. Archiv für Eisenbahnwesen 70: 2: 1960: 209-224.

Knife-Noses and Portholes—The Story of the McKeen Car—or what happened when rail magnate E. H. Harriman decided to cut local passenger-train expenses, by William W. Kratville. Trains, July 1960: 30-39. Illus. by photographs from author's collection. [William R.] *McKeen the man:* 39.

[Locomotive Rosters]—*Missouri Pacific Lines* [and] *St. Louis-Southwestern Railway* compiled by Sy Reich. *Long Island Railroad,* compiled by Savas Stavropoulos. Railroad Magazine, August 1960: 29; 61; 36-37.

Le Métro Suspendu Vu par Tiop à Londres, New York, Paris et Rome. La Vie du Rail No. 472, 10 Avril 1960: 42. The French cartoonist's designs of monorailroads to blend with the architecture and transportation needs of the four cities.

Milwaukee Road Electric Locomotives, by Insley J. Brain, Jr. The Western Railroader, June 1960: 3-8.

New Developments in Motive Power, by C. P. Turner. New York Railroad Club, Official Proceedings, April 21, 1960: 67-82. A preliminary report by Committee on New Developments, Locomotive Maintenance Officers Association. Final report to be issued in September 1960 by Locomotive Maintenance Officers Association.

The New Dimension in Materials Handling—IDEAS, Not Hardware, by C. William Drake. Mechanical Engineering, June 1960: 71-73.

New Goals for RR Research, by A. S. Long. Railway Age, August 22, 1960: 27-28. ". . . A former D&RGW officer, Mr. Long has been at M. I. T. since 1956. He instructed at the Army's transport school, Ft. Eustis, Va., in 1952-1955.

Old 1512 Again Rides the Rails. Carbuilder, July-August 1960: 10-11. Illus. ". . . a private car sidetracked since 1953, is once more riding the rails, resplendant in all her Victorian glory. . . . Built by Pullman-Standard in 1926 . . ."

Orbisonia Line Chugs Out of the Past, by Martha T. Douds. Illus. East Broad Top Railroad reopened for joint bicentennial of Orbisonia and Rockhill Furnace, Pa., Aug. 12-13, and on weekends on full-time basis next summer.

Out of Nowhere to Somewhere—the P G E Story 1. Pacific Great Eastern literally laid track right out of oblivion. 2. Pacific Great Eastern could turn internationalist within the decade, by E. N. Smith and F. Murray Greenwood. Trains, June 1960: 28-36,—Map captioned "Bound for Alaska?" 32. "Profile of the Please Go Easy" 32-33; July 1960: 40-45. Illus. by photographs by authors. "As TRAINS goes to press word comes from Authors Smith and Greenwood that details have been outlined for the Wenner-Gren development project . . . The railroad is to be the Pacific Northern Railway, a Wenner-Gren subsidiary . . ." 45.

The Paraphernalia of Piggyback—Being a cyclopedia of unavoidable conformity, by David Morgan. Trains, June 1960: 37-45.

Piggyback Performance—Trains photographers field-inspect three piggyback operations—Pennsy's TT1 . . . ridden by Don Wood; Burlington Nos. 61 and 64 . . . ridden by J. P. Lamb, Jr.; Southern Pacific's CME . . . ridden by Richard Steinheimer. Trains, July 1960: 46-57. Illus.

Piggyback Services by Railroads—Panel discussion by Fred Carpi, vice president, Pennsylvania, A. E. Baylis, vice president, New York Central, and J. W. Phipps, Jr., vice president, B & O, with E. V. Hill, Traffic Executive Association Eastern Railroads, chairman. New York Railroad Club. Official Proceedings May 19, 1960: 89-110.

Powerful New Locomotive for High Speed Operation. Diesel Power & Equipment, May-June 1960: 9-12. Illus. "Designed to assist railroads in improving their competitive position in today's transportation picture, a completely new 2500 horsepower mainline diesel-electric locomotive . . . General Electric."

Progress of Integration on the European Railway Network, by C. E. R. Sherrington. The Three Banks Review, June 1960: 24-33.

Published in Great Britain. U. S. Representative at 63 Wall Street, New York 5.

Propane Tested as Substitute for Locomotive Diesel Fuel. Diesel Power & Equipment, May-June 1960: 12.

Railroads and Push-Button Warfare, by John P. Delaney. Southern & Southwestern Railway Club. Proceedings May 1960: 34, 38-41, 45, 49. Questions and Answers: 53-54.

Research and the Railway Supply Industry—Research . . . the Supply Companies' Contribution to Brighter Days Ahead for the Railroads by Carter Kissell and other supply company executives. Railway Materials and Equipment, May-June 1960: 9, 15-21. ports.

Russian Railroads: A U. S. View—First Report of U. S. Delegation to USSR, C. D. Buford, vice-president, AAR, Spokesman, at press conference, New York. Railway Age, August 1, 1960: 9, 14-15. ". . . The group will prepare a detailed report . . . for submission to the A. A. R. in the fall. . . ."

Silver Anniversary Souvenir Issue, Bulletin, National Model Railroad Association, August 1960. "Silver Anniversary Journal . . . 1935-1960" by A. C. Kalmbach.

Silver Jubilee Special, National Railway Historical Society Bulletin, Third Quarter 1960: 4-11, Going, Going GONE—a Hojack branch recalled by Fred Merz [Rome, Watertown & Ogdensburg]: 14-22, The Story of Rapid Transit in Boston, by Robert L. Abrams. Illus., Map: 24-25, Tweetsie and Its Narrow Gauge Glory, photos; 40-45; . . . "Noting the Society's 25th Anniversary, we present herewith eleven photographs that appeared in Bulletins many years ago."

Telephone Fight: Who Wants What in Interconnection Dispute? by Robert W. McKnight. Railway Age, May 23, 1960: 30-32. ports. Summary of testimony at hearings in FCC Docket No. 12940 last year and earlier this year. Reply briefs were filed on or before Aug. 2, 1960. ". . . Then the FCC will take the matter under advisement. It will probably take from a few months to a year or more for the Commission to issue its ruling."

Ten Driving Wheels, by H. L. Kelso. Railroad Magazine, August 1960: 16-22. Illus. "Mighty but not glamorous, these engines made history, mostly hauling freight."

Track Maintenance—Past, Present and Future, by Royce Kershaw. Southern & Southwestern Railway Club Proceedings, May 1960: 15-28; Questions and Answers: 28-34.

Transport History in University Theses, by H. J. Dyoe. The Journal of Transport History. May 1960: 161-165, with List of theses submitted to British universities 165-173.

TRANSPORTATION NUMBER, Business History Review, Summer 1960: 137-149, *British Railroads and Engineers and the Beginning of American Railroad Development,* by Robert E. Carlson. Illus. 150-169, *Anglo-American Merchant Bankers and the Railroads of the Old Northwest 1848-1860,* by Ralph W. and Muriel E. Hidy. 194-215, *British Attitudes Toward Investment in North American Railroads,* by A. W. Currie. 217-239, Studies in Enterprise, 1959—A Selected Bibliography, by Lorna M. Daniells.

Westcoast Railroad Museum and Railfan Index. The Western Railroader, July 1960: 3-6.

Will Rails and Water Mix? Trains, July 1960: 7. ". . . What really laid the issue on the I. C. C.'s doorstep this spring was the application of Illinois Central and Southern Pacific to jointly purchase the John I. Hay Company, one of the 10 largest barge operators on the inland and coastal waterways. . . ."

New Books

Mansions on Rails, by Lucius Beebe. 382 pages, 10½x7½, illustrated. Published by Howell-North, 1050 Parker Street, Berkeley (10), California. Price $10.00.

This is a story of the private car and their opulent owners. At the close of the Civil War, we commenced to develop our natural resources and this gave rise to a new monied class. Opportunities for speculation were rife, railroads were acquired by new owners and it was these people with their new wealth that were able and did travel in such grandeur. The country had been linked by the Union and Central Pacific Railroads in 1869—there was the Pacific Coast to visit as well as countless other places in between. Railroad executives had their own "private varnish," sometimes furnished to the detriment of the stockholders and, in later years they went under the heading of "business cars." All were outshopped by Pullman, Wagner, Jackson & Sharp and others, including the railroad car shops.

The author has not only introduced us to these rolling palaces but to their owners with their foibles and idiosyncrasies as well. "Bet-A-Million" Gates who would bet with his companion as to which raindrop on the window would be first to reach the sill! The book is richly illustrated, thanks to the recent discovery of the Pullman plates and it is these that have added so much to the value of this work with the interior and exterior views. The appendix contains a list of the Pullman business and private cars built between 1882 and 1930 and, it would have been nice, if possible, to have included an index for this book.

In the matter of the Jarrett & Palmer special, the author states the locomotive that drew this train from Jersey City on the Pennsylvania R. R. was named the "Governor Tilden." According to the official records, that road had removed the names from all of their locomotives by the close of 1858 and, from the same course, locomotive No. 573, Class D-3 built in the Altoona Machine Shops in December, 1872 hauled this special train from Jersey City to Pittsburgh. If it carried the name "Governor Tilden" it was only on this special trip.

The private car field has not been the subject of any recent book and it is certain that this publication will set a high example for some time to come.

Steam Locomotives, edited by Linn H. Westcott, 272 pages, 11x14, illustrated. Published by Kalmbach Publishing Co., 1027 North 7th St., Milwaukee (3), Wisconsin. Price $20.00.

This work has long been overdue and should furnish the answers to the many questions of the model-making fraternity but it won't satisfy the rugged individualist who, for example, wants to construct a model of the B-15 class locomotive on the Boston & Maine. However, you can't satisfy everyone but this book with its drawings and illustrations should satisfy the majority. All plans are given in uniform scale (HO) for easy comparison but other scales can be enlarged or reduced by methods explained in the book. There are plans for 127 locomotives of the different types used in this country. It explains how locomotives

work, why changes were made in design, shows the details of running gear, boilers, piping, fittings and tenders and countless other details. It is one of the most complete compilations of data, specifications and drawings ever attempted for the work of the model builder and both publisher and editor should be congratulated for presenting such a valuable contribution in this field.

Unusual Locomotives, by Ernest F. Carter. 221 pages, 8½x5½, illustrated. Published by The Macmillan Co., 60 Fifth Ave., New York (11), N. Y. Price $4.50.

Without resorting to the dry and dreary mechanical details of locomotive construction, the author has covered the period of "pre-Rocket" days to the close of World War II not only in Europe but in this country as well. If some of these "unusual" or experimental locomotives appeared unorthodox by the standards then in vogue, we must remember that it was only by the "trial and error" method that we have advanced in our ideas. Many were failures but many led the way to improvement. The author appears to be well versed on this subject, he has done a pains-taking job of research through the mechanical journals to bring all of this data between two covers yet he has handled the subject so skillfully as to make it not only of great interest but of historic value. It should be of great interest to everyone who is interested in the history and development of the steam locomotive. In addition to the text, there is a page devoted to the different locomotive wheel arrangements; a table showing the locomotives taken over by the British Railways on nationalization; details on some outstanding British locomotives; a list of locomotive superintendents and chief mechanical officers of the railways of Great Britain after 1870 and the index completes this book.

Baldwin Locomotive Works—Illustrated Catalogue. 153 pages, 10⅝x7½, illustrated. Published by Howell-North, 1050 Parker St., Berkeley (10), California. Price $10.00.

This is a reprint of the second edition, 1881, that was published by this famous locomotive building firm. Fifty-three pages are devoted to a sketch (history) of these works, there is a page devoted to the Baldwin classification of locomotives, a classification they maintained until the last steam locomotive was built and the balance is made up of illustrations of the various types of locomotives they were capable of building, their dimensions, outline drawings and testimonial letters relating to locomotives delivered to these railroads.

Of the many editions published by these works, this 1881 edition is probably the most interesting because of the wealth of information it contains. Copies of the original edition sell for several times the cost of this reprint and the publishers have wisely indicated this as a reprint so that some time in the future it won't be confused with the original edition. This is an opportunity of adding a valuable locomotive catalogue to your library at a nominal cost.

Steam Locomotives of the Burlington Route, by Bernard G. Corbin and William F. Kerka, 304 pages, 11x8½, illustrated. Published by the Thomas D. Murphy Co., Red Oak, Iowa. Price $15.00.

This is the third volume that has been published recently devoted to the steam locomotives of a single road and it is in keeping with those devoted to the Union Pacific and the Louisville & Nashville Railroads.

There are 252 pages of text and these are followed by a double spread of the May 1st, 1858 roster of locomotives and this is followed by an individual listing of the locomotives, not only of the "Q" but the Colorado & Southern, both standard and narrow gauge and the Fort Worth & Denver. The large pages make it possible to show the complete history of each locomotive from its delivery to the "Q" or its original owner to its final disposition. There are 64 pages of outline drawings and here will be found a table of the dimensions and specifications. The book abounds in illustrations, even a colored frontispiece and these alone tell the story and well supplement the text.

The Burlington System has always been one of our outstanding western railroads. It has always been well managed over these one hundred years, it has never been in the hands of our courts, it has been the mail route between Chicago and Council Bluffs and it pioneered in the diesel-electric streamlined train. It has also been a training school for many of our most capable railroad executives. If you are interested in the "Q" and its locomotives, you will be delighted with this book and the authors deserve to be commended for their efforts.

Modern Railways, by Cecil J. Allen, 307 pages, 9⅞x7⅜, illustrated. Published by The Macmillan Co., 60 Fifth Ave., New York (11), N. Y. Price $9.00.

The author of this work needs no introduction to our membership as he has a long record of railway service and his reputation as a writer, lecturer and broadcaster on railway subjects is second to none. In the twenty-four chapters devoted to this book he has traced the origin of the railways and our standard gauge to the extensive modernization and re-equipment plan of the British Railways. Four chapters are devoted to the steam locomotive and two to the newer forms—the electric, diesel-electric and gas turbine. There are five chapters devoted to the passenger services and rolling stock and there are chapters on the right of way, including bridges, tunnels, signals, stations and management. It is a variable compendium of railway history and data.

The British railways do not alone, form the subject of this book. Both the railways on the continent and the U. S. A. are included in the nature of comparison. The author has not hesitated to give praise where praise is due. For example, the British loading gauge is considerably less than the continental or American railways. To electrify portions of such British lines because of the low clearance in certain tunnels is almost impossible because of the headroom required for the pantograph. New tunnels cost money, hence the adoption of the diesel-electric locomotive.

This reviewer was interested in the training of the French enginemen. The driver-to-be, after an examination, enters a railway technical school and for three years receives instruction in mathematics, science and workshop experience. After another examination he becomes an apprentice—a fitter, boiler-maker or machinist in the locomotive shops until his time comes for military service. At the end of that he becomes

a fireman and after a number of years he is given a stiff examination, not only on the working and maintenance of locomotives but signalling, railway operation and safety rules and, if this hurdle is passed successfully he becomes a pupil driver. Three or four years driving freight, suburban and local passenger trains leads to the final examination and, if this is passed the candidate becomes a full fledged engineer. The crews have their own locomotives, they are responsible for day-to-day maintenance, the engineer making minor mechanical adjustments, the fireman does the cleaning, for which bonuses are paid and French enginemen are officially encouraged to keep their trains on time by recovering as much lost time as possible and to save fuel, both by means of bonuses. A self-recording speed indicator also prevents any reckless running.

The author has taken the British railways as the basis of his work but he has skillfully compared their motive power and operation with those in other countries and it is this broad picture that makes this book of such interest and value.

The Electric Interurban Railways in America, by George W. Hilton and John F. Due, 463 pages, 9x6. Illustrated. Published by the Stanford University Press, Stanford University, California. Price $9.50.

This valuable work is divided into two equally interesting parts—an analysis of the industry and a brief history of the various interurban lines. It was in the first decade of this century that the interurban had its growth and, it was the automobile, the hard paved road and the depression years of the 1930's that sealed their doom. One line operated for nineteen years with uninterrupted deficits and another was so hard up that it paid its employees in fare tokens and was abandoned only because its power was shut off for failure to pay its bills. The statement made on page 226 is one to provoke serious thought—"The two primary factors in (the industry's) decline were the development of the motor vehicle and a lag in the productivity per worker relative to that in industry."

The first part, consisting of 250 pages traces the rise of the interurban lines, their technology, passenger and freight traffic, government regulation, their finances and the decline and final abandonment. Part II is liberally supplied with extremely clear maps and provides a brief history of the many interurban lines. It is not a dreary list of references, rather these sketches are extremely interesting and valuable. The book not only has a general index but a listing of all interurban lines as well.

It is true that the states of Ohio, Indiana and Michigan were the centers of this interesting form of transportation. The industry was hated by the steam railroads who denied them joint tariffs both in passenger and freight service and, at the close of World War I, they suffered from the jitney and the wild-cat 'bus situation that took the country by storm. Regulation was "too little and too late!" By the time remedial assistance was applied the patient was ready for the undertaker and only those lines that had obtained concessions from the railroads in joint freight tariffs were able to survive. One wonders what the future of this form of transportation might have been had the steam railroads regarded these lines as feeders rather than as competi-

tors. Be it said to its credit, the Chicago Great Western did view them in this light and gained thereby but the passenger business generated by these interurbans could hardly be said to have come from the local passenger business of the steam railroads.

There is no doubt in the years to come that histories of certain individual lines or groups of interurban carriers will be published but it will be some time before this book is matched by one that covers the entire field so well and so adequately. You can't help but feel, as you read this book, that some of the problems that faced these interurban lines now face our steam railroads and there is a certain parallel between the two. If you are interested in the subject this book is well worth the price and your consideration.

Covered Bridges of the Middle Atlantic States, by Richard Sanders Allen, 120 pages, 10½x7⅝. Illustrated. Published by the Stephen Greene Press, 120 Main St., Brattleboro, Vermont. Price $6.50.

What the author has done for the covered bridges of the northeastern section of this country he has now completed for the states of Delaware, Maryland, Pennsylvania, Virginia, West Virginia and the District of Columbia. Included also are chapters on railroad bridges and another on the destruction of bridges during our Civil War.

The first covered bridge in this country spanned the Schuylkill River in Philadelphia and was advanced far enough along to be opened for traffic on January 1, 1805. Timothy Palmer of Newburyport, Mass., built the span. Other bridge builders were Theodore Burr, Lewis Wernwag, Ithiel Town, Col. Stephen H. Long and William Howe. All had their own designs that made their bridges recognizable. Time, weather and flood have removed many of these covered bridges from the rivers they spanned but, in the Commonwealth of Pennsylvania, at the time of writing, there were 345 of the covered bridges still in active service, more than in any other state. The greatest numbers will be found in Columbia and Lancaster counties.

The author has told his story in an interesting and straightforward manner, the many illustrations add much to the description and interest, a list of covered bridges that still exist rounds out a very interesting work. Without our bridges, life would be far more difficult.

New York's El Lines, 1867-1955. 8½x11, illustrated. Published by the Electric Railroader's Ass'n., Inc. Copies may be obtained from Mr. George E. Horn, Editor, 145 Greenwich St., New York (6), N. Y. Price $1.00.

Altho' many of our members probably will not be interested in this work, the author had access to the records of the Interborough Rapid Transit Co. and has not only listed in great detail their electrical equipment but the early steam dummies and the steam locomotives, together with their disposition as well. So far as this reviewer knows, this is the first roster of the locomotives of the old Manhattan Ry. When the road was electrified these locomotives were widely scattered and their disposition is highly interesting and important. Item P-36 lists the steam dummies, locomotives and passenger cars with their disposition and this roster will prove a valuable addition for those that are interested in the early rolling stock of this railroad.

In Memory of

LEWIS H. BULLARD
Annual Member
1035 32nd Ave., North, St. Petersburg, Fla.
Who Died on Dec. 28, 1959

WILLIAM D. CRELLEY
Annual Member
2242 Glenwood Ave., Toledo, Ohio
Who Died on July 22, 1960

J. M. FITZGERALD
Annual Member
125 East 50th St., New York, N. Y.
Who Died on Feb. 25, 1960

GEORGE A. JACK
Annual Member
105 Richland Ave., San Francisco, Calif.
Who Died on Aug. 19, 1958

ERNEST F. STILLINGS
Annual Member
52 Signal St., Rochester, N. H.
Who Died on Feb. 10, 1960

E. MILO TURNER
Annual Member
Buckfield, Maine
Who Died on July 6, 1960

CARLISLE B. TUTTLE
Annual Member
Naugatuck, Connecticut
Who Died on Dec. 20, 1958